

=> file reg

FILE 'REGISTRY' ENTERED AT 14:26:03 ON 26 DEC 2002
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FILE 'HCAPLUS' ENTERED AT 13:13:58 ON 26 DEC 2002

L1 23 SEA MALFER ?/AU
L2 4119 SEA NOBLE ?/AU
L3 620 SEA COLUCCI ?/AU
L4 253 SEA SHEETZ ?/AU
L5 0 SEA L1 AND L2 AND L3 AND L4
L6 500 SEA SHEETS ?/AU
L7 1 SEA L1 AND L2 AND L3 AND L6
SEL

L7 1 RN

FILE 'REGISTRY' ENTERED AT 13:16:55 ON 26 DEC 2002

L8 6 SEA (108-95-2/BI OR 111-92-2/BI OR 124-40-3/BI OR

FILE 'LCA' ENTERED AT 13:19:22 ON 26 DEC 2002

L9 1113 SEA POLYOLEFIN## OR OLEFIN## OR POLYALKENYL? OR ALKENYL?
OR POLYETHENYL? OR ETHENYL? OR POLYPROPENYL? OR PROPENYL?
OR POLYBUTENYL? OR BUTENYL? OR BUTENE# OR ISOBUTENE# OR
POLYBUTENE# OR POLYISOBUTENE# OR ISOBUTYL? OR ISOBUTENYL?
OR BUTYLEN? OR ISOBUTYLEN?
L10 64 SEA POLYISOBUTYL? OR POLYISOBUTENYL? OR POLYBUTYLEN? OR
POLYISOBUTYLEN? OR POLYBUTENYL?
L11 603 SEA POLYALKENYL? OR ALKENYL? OR POLYETHENYL? OR ETHENYL?
OR POLYPROPENYL? OR PROPENYL? OR POLYBUTENYL? OR
BUTENYL? OR BUTENE# OR ISOBUTENE# OR POLYBUTENE# OR
POLYISOBUTENE# OR ISOBUTYL? OR ISOBUTENYL? OR BUTYLEN?
OR ISOBUTYLEN?
L12 64 SEA POLYISOBUTYL? OR POLYISOBUTENYL? OR POLYBUTYLEN? OR
POLYISOBUTYLEN? OR POLYBUTENYL?

FILE 'REGISTRY' ENTERED AT 13:28:29 ON 26 DEC 2002

E PHENOL/CN
L13 1 SEA PHENOL/CN
E 2-METHYLPHENOL/CN
L14 1 SEA 2-METHYLPHENOL/CN
E 3-METHYLPHENOL/CN
L15 1 SEA 3-METHYLPHENOL/CN
E 4-METHYLPHENOL/CN
L16 1 SEA 4-METHYLPHENOL/CN
E CRESOL/CN
L17 1 SEA CRESOL/CN
E CATECHOL/CN
L18 2 SEA CATECHOL/CN

L19 E 1,2-BENZENEDIOL, 3-METHYL-/CN
 1 SEA "1,2-BENZENEDIOL, 3-METHYL-"/CN
 L20 E 1,2-BENZENEDIOL, 4-METHYL-/CN
 1 SEA "1,2-BENZENEDIOL, 4-METHYL-"/CN
 L21 E 1,3-BENZENEDIOL/CN
 1 SEA "1,3-BENZENEDIOL"/CN
 L22 E 1,3-BENZENEDIOL, 2-METHYL-/CN
 1 SEA "1,3-BENZENEDIOL, 2-METHYL-"/CN
 L23 E 1,3-BENZENEDIOL, 4-METHYL-/CN
 1 SEA "1,3-BENZENEDIOL, 4-METHYL-"/CN
 L24 E 1,3-BENZENEDIOL, 5-METHYL-/CN
 1 SEA "1,3-BENZENEDIOL, 5-METHYL-"/CN
 L25 E 1,4-BENZENEDIOL, 2-METHYL-/CN
 1 SEA "1,4-BENZENEDIOL, 2-METHYL-"/CN
 L26 13 SEA (L14 OR L15 OR L16 OR L17 OR L18 OR L19 OR L20 OR
 L21 OR L22 OR L23 OR L24 OR L25)

FILE 'HCAPLUS' ENTERED AT 13:36:57 ON 26 DEC 2002

L27 9888 SEA (L13/D OR L13/DP OR PHENOL##) (L) (L9 OR L10)
 L28 5601 SEA (L13/D OR L13/DP OR PHENOL##) (L) (L11 OR L12)
 L29 2161 SEA (L26/D OR L26/DP OR CRESOL# OR CATECHOL# OR ?BENZENED
 IOL?) (L) (L9 OR L10)
 L30 1306 SEA (L26/D OR L26/DP OR CRESOL# OR CATECHOL# OR ?BENZENED
 IOL?) (L) (L11 OR L12)

FILE 'REGISTRY' ENTERED AT 13:43:54 ON 26 DEC 2002

E FORMALDEHYDE/CN
 L31 1 SEA FORMALDEHYDE/CN

FILE 'HCAPLUS' ENTERED AT 13:45:07 ON 26 DEC 2002

L32 205360 SEA L31 OR FORMALDEHYDE# OR FORMALIN# OR CH2O OR HCHO OR
 H2CO
 L33 462257 SEA ?ALDEHYD?

FILE 'LREGISTRY' ENTERED AT 13:45:34 ON 26 DEC 2002

L34 STR

FILE 'REGISTRY' ENTERED AT 13:48:32 ON 26 DEC 2002

L35 SCR 1597
 L36 17 SEA SSS SAM L34 AND L35
 L37 SCR 963 OR 1398
 L38 SCR 1838 OR 1918
 L39 50 SEA SSS SAM L34 AND L35 AND L37 NOT L38
 D QUE STAT
 L40 15 SEA SSS SAM L34 AND L35 AND L37
 L41 2975 SEA SSS FUL L34 AND L35 AND L37 NOT L38
 SAV L41 TOO036/A

FILE 'HCAPLUS' ENTERED AT 14:01:43 ON 26 DEC 2002

L42 35810 SEA L41
 L43 821 SEA L42 AND (L32 OR L33) AND MANNICH?
 L44 16 SEA L43 AND L27

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L45      15 SEA L43 AND L28
L46      1 SEA L43 AND L29
L47      1 SEA L43 AND L30
L48      QUE ?PHENOL?
L49      QUE ?CATECHOL? OR ?CRESOL? OR ?BENZENEDIOL? OR ?HYDROXYAR
        OM? OR ?HYDROXYBENZEN?
L50      165 SEA L43 AND L48
L51      28 SEA L43 AND L49
L52      QUE 51/SC,SX
L53      526110 SEA FUEL? OR DIESEL? OR GASOL!N? OR KEROS!N? OR PARAFIN##
        OR PARAFFIN## OR JETFUEL? OR AVGAS## OR JP5 OR JP10 OR
        JP(A) (5 OR 10) OR PETROL#
L54      284217 SEA (LUBRIC? OR LUBE# OR GREAS? OR ANTIFRIC? OR ANTIWEAR?
        OR ANTICORRO? OR ANTIRUST? OR ANTIOXID? OR ANTI(W) (FRIC?
        OR WEAR? OR CORRO? OR RUST? OR OXID?) OR SLICK? OR
        SLIPP? OR OLEAGINOUS?)/BI,AB
L55      22902 SEA ((GEAR? OR ENGINE# OR CRANKCASE? OR MOTOR# OR
        TRANSMISSION? OR HYDRAUL? OR MACHINE? OR (2 OR 4 OR TWO
        OR FOUR) (W) (CYCLE# OR STROKE#)) (2A) (FLUID# OR OIL#))/BI,A
        B
L56      22 SEA L50 AND L52
L57      16 SEA L50 AND L53
L58      29 SEA L50 AND (L54 OR L55)
L59      1 SEA L46 OR L47
L60      15 SEA (L44 OR L45) NOT L59
L61      26 SEA L51 NOT (L59 OR L60)
L62      20 SEA (L56 OR L57 OR L58) NOT (L59 OR L60 OR L61)
L63      522 SEA ?DISUBST? (3A) ?PHENOL?
L64      0 SEA L61 AND L63
L65      0 SEA L62 AND L63

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FILE 'HCAPLUS' ENTERED AT 14:19:42 ON 26 DEC 2002

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L66      204 SEA (DI(2A)SUBST?) (3A) (?PHENOL? OR ?HYDROXYAROM?)
L67      0 SEA L61 AND L66
L68      0 SEA L62 AND L66
L69      4 SEA L43 AND (L63 OR L66)
L70      4 SEA L59 OR L69
L71      15 SEA L60 NOT L70
L72      26 SEA L61 NOT L70
L73      20 SEA L62 NOT L70

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FILE 'REGISTRY' ENTERED AT 14:26:03 ON 26 DEC 2002

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=> d l41 que stat
L34      STR

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Ak~^NH~Ak
1      2      3

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NODE ATTRIBUTES:

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CONNECT IS E1 RC AT 1
CONNECT IS E1 RC AT 3

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DEFAULT MLEVEL IS ATOM
 GGCAT IS SAT AT 1
 GGCAT IS SAT AT 3
 DEFAULT ECLEVEL IS LIMITED
 ECOUNT IS M1-X30 C AT 1
 ECOUNT IS M1-X30 C AT 3

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE
 L35 SCR 1597
 L37 SCR 963 OR 1398
 L38 SCR 1838 OR 1918
 L41 2975 SEA FILE=REGISTRY SSS FUL L34 AND L35 AND L37 NOT L38

100.0% PROCESSED 35578 ITERATIONS 2975 ANSWERS
 SEARCH TIME: 00.00.01

=> file hcaplus
 FILE 'HCAPLUS' ENTERED AT 14:27:12 ON 26 DEC 2002
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=> d l70 1-4 cbib abs hitstr hitind

L70 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2002 ACS
 2002:591747 Document No. 137:142848 **Mannich** bases prepared
 from secondary amines and disubstituted hydroxyaromatic compounds as
 gasoline intake valve deposit inhibitors. Malfer, Dennis J.; Noble,
 Andrea T.; Colucci, William J.; Sheets, Roger M. (Ethyl Corporation,
 USA). Eur. Pat. Appl. EP 1229100 A2 20020807, 11 pp. DESIGNATED
 STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
 MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN:
 EPXXDW. APPLICATION: EP 2002-250697 20020201. PRIORITY: US
 2001-776036 20010202.

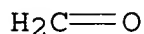
AB **Mannich** base gasoline additive are prep'd. by reaction of:
 (1) a **di-substituted hydroxyarom.**
 comp'd., with a long-chain polyolefin-derived aliph. hydrocarbon
 group with mol. wt. 500-3000, and a C1-4-alkyl group, (2) a
 secondary amine of formula HNR1R2 (R1 and R2 = C1-30-alkyl), and (3)
 an **aldehyde**. The hydroxyarom. comp'd. is preferably a
 phenol that has only 1 unsubstituted ortho- or para-position for
 reaction with the **ald hyde** and the secondary amine. The
 condensation reaction is carried out at a 1:1.0-1.15:1.0-1.5 mol
 ratio of hydroxyarom. comp'd.-amine-**aldehyde**. An addnl.
 component to enhance the effectiveness of the **Mannich** base

is a carrier liq., esp. a hydrocarbon oil, a poly(.alpha.-olefin) oligomer, and a polyoxyalkylene [esp. a poly(1,2-alkylene oxide) mono(C.g.toreq.8-alkyl ether)]. The **Mannich** bases, suitable as gasoline valve deposit inhibitors, are present in the gasoline at a 5-200 lbs/bbl treating level.

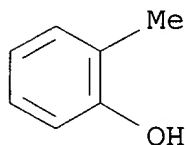
IT 50-00-0DP, **Formaldehyde**, reaction products with **polybutenyl-o-cresol** and di-Me amine (or di-Bu amine) 95-48-7DP, **o-Cresol**, **polybutenyl** derivs., reaction products with di-Me amine (or di-Bu amine) and **formaldehyde** 111-92-2DP, Dibutyl amine, reaction products with **formaldehyde** and **polybutenyl-o-cresol** 124-40-3DP, Dimethyl amine, reaction products with **formaldehyde** and **polybutenyl-o-cresol**

(**Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)

RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 95-48-7 HCAPLUS
CN Phenol, 2-methyl- (9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS
CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC ICM C10L001-22
ICS C10L001-14; C10L010-00
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

- ST gasoline valve deposit inhibitor **Mannich** base; secondary amine **Mannich** base gasoline deposit inhibitor; polyoxyalkylene **Mannich** base gasoline deposit inhibitor
- IT **Mannich** bases
(**Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT **Aldehydes**, uses
(**Mannich** reaction products with **disubstituted phenols** and secondary aliph. amines; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Amines, uses
(aliph., secondary, **Mannich** reaction products with **disubstituted phenols** and **aldehydes**; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Polyoxyalkylenes, uses
(alkyl group-terminated, carrier liqs.; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Polyoxyalkylenes, uses
(carrier liqs.; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Gasoline additives
(deposit inhibitors; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Gasoline additives
(detergents; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT **Phenols**, uses
(**disubstituted**, reaction products with secondary aliph. amines and **aldehydes**; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Detergents
(gasoline additive; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Polyoxyalkylenes, uses
(mono(C.gtoreq.8-alkyl-terminated, carrier liqs.; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Polyolefins
(oligomers, carrier liqs.; **Mannich** bases prepd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT 108-95-2D, Phenol, polyalkenyl derivs., reaction products with

aldehydes and secondary aliph. amines

(**Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)

IT 50-00-0DP, **Formaldehyde**, reaction products with **polybutenyl-o-cresol** and di-Me amine (or di-Bu amine) 95-48-7DP, **o-Cresol**, **polybutenyl** derivs., reaction products with di-Me amine (or di-Bu amine) and **formaldehyde** 111-92-2DP, Dibutyl amine, reaction products with **formaldehyde** and **polybutenyl-o-cresol** 124-40-3DP, Dimethyl amine, reaction products with **formaldehyde** and **polybutenyl-o-cresol**

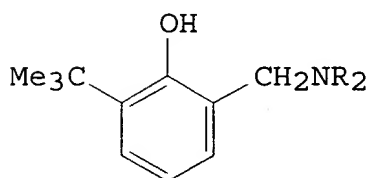
(**Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)

IT 25322-69-4D, mono(C.gtoreq.8-alkyl-terminated (carrier liqs.; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)

L70 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2002 ACS

1990:551939 Document No. 113:151939 Selective functionalization of aromatic compounds. I. o-Aminoalkylation of phenol and o-tert-butylphenol. Salakhutdinov, N. F.; Krysin, A. P.; Koptug, V. A. (Novosib. Inst. Org. Khim., Novosibirsk, USSR). Zhurnal Organicheskoi Khimii, 26(4), 775-7 (Russian) 1990. CODEN: ZORKAE. ISSN: 0514-7492. OTHER SOURCES: CASREACT 113:151939.

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AB **Mannich** reaction of o-Me3CC6H4OH with HCHO and R2NH (R = Me, Et) gave 90-95% phenols I, exclusively substituted in the o-position, and small amts. of the 2,4-disubstituted phenols. **Mannich** reaction of a phenol-.beta.-cyclodextrin complex with Me2NH and HCHO gave 75% o-substituted product.

IT 109-89-7, reactions

(**Mannich** reaction of **formaldehyde** and, with butylphenol)

RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IT 124-40-3, reactions
(**Mannich** reaction of **formaldehyde** and, with
phenol and butylphenol)

RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

ST **Mannich** reaction phenol dialkylamine; cyclodextrin phenol
complex **Mannich** reaction

IT **Mannich** reaction
(of phenol and butylphenol by **formaldehyde** and
dialkylamines)

IT 109-89-7, reactions
(**Mannich** reaction of **formaldehyde** and, with
butylphenol)

IT 124-40-3, reactions
(**Mannich** reaction of **formaldehyde** and, with
phenol and butylphenol)

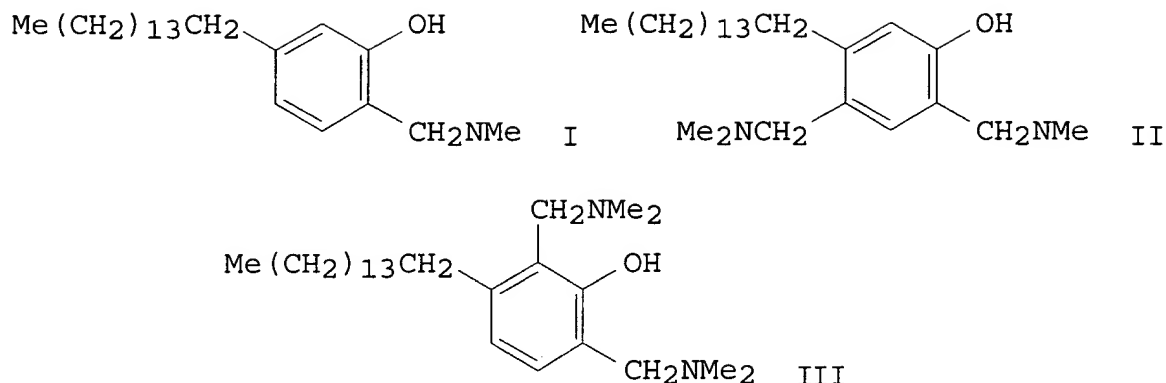
IT 88-18-6
(**Mannich** reaction of, with dimethyl- and diethylamines
and **formaldehyde**)

IT 73621-01-9D, phenol complex
(**Mannich** reaction of, with **formaldehyde** and
dimethylamine)

L70 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2002 ACS

1987:515049 Document No. 107:115049 Enhancement of the rate of
Mannich reactions in aqueous media. Tychopoulos, V.; Tyman,
J. H. P. (Dep. Chem., Brunel Univ., Uxbridge/Middlesex, UB8 3PH,
UK). Synthetic Communications, 16(11), 1401-9 (English) 1986.
CODEN: SYNCAV. ISSN: 0039-7911. OTHER SOURCES: CASREACT
107:115049.

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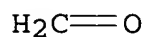
AB The rate of **Mannich** reactions of PhOH, 3-Me(CH₂)₁₄C₆H₄OH and MeCOPh with CH₂O and Pr₂NH was greatly increased in aq. solvents relative to alc. and hydrocarbon solvents. Phenols reacted with CH₂O and amines, e.g., Me₂NH, to give monosubstituted dialkylaminomethylphenols (e.g., I) or isomeric **disubstituted dialkylaminomethylphenols** (e.g.; II, III) depending upon the reaction time.
 IT 124-40-3, reactions
 (Mannich reaction of, with phenol)
 RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



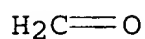
IT 142-84-7, Dipropylamine
 (Mannich reaction of, with phenols and acetophenol, solvent effect on rate of)
 RN 142-84-7 HCAPLUS
 CN 1-Propanamine, N-propyl- (9CI) (CA INDEX NAME)



IT 50-00-0, reactions
 (Mannich reaction of, with secondary amines, phenols or acetophenone, solvent effect on rate of)
 RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- CC 22-4 (Physical Organic Chemistry)
Section cross-reference(s): 25
- ST **Mannich** rate enhancement aq media; alkylaminomethylphenol;
phenol dialkylaminomethyl; kinetics **Mannich** aq media
- IT Kinetics of **Mannich** reaction
(of phenols and acetophenone with secondary amines)
- IT **Mannich** reaction
(of secondary amines with phenols and acetophenone)
- IT Solvent effect
(on rate of **Mannich** reaction of pentadecylphenol and
acetophenone with dipropylamine)
- IT Amines, reactions
(secondary, **Mannich** reaction of, with phenols and
acetophenone)
- IT 108-39-4, reactions 108-95-2, Phenol, reactions
(**Mannich** reaction of, with dimethylamine)
- IT 98-86-2, Acetophenone, reactions
(**Mannich** reaction of, with dipropylamine, solvent
effect on rate of)
- IT 124-40-3, reactions
(**Mannich** reaction of, with phenol)
- IT 142-84-7, Dipropylamine
(**Mannich** reaction of, with phenols and acetophenol,
solvent effect on rate of)
- IT 50-00-0, reactions
(**Mannich** reaction of, with secondary amines, phenols or
acetophenone, solvent effect on rate of)
- IT 501-24-6, 3-Pentadecylphenol
(**Mannich** reaction of, with secondary amines, solvent
effect on rate of)
- L70 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2002 ACS
- 1973:526004 Document No. 79:126004 **Mannich** bases. VI.
Mannich bases of 2,6-disubstituted phenols
. Moehrle, H.; Miller, Chr. (Pharm. Inst., Freie Univ. Berlin,
Berlin, Fed. Rep. Ger.). Archiv der Pharmazie (Weinheim, Germany),
306(7), 552-7 (German) 1973. CODEN: ARPMAS. ISSN: 0365-6233.
- AB **Mannich** reaction of 2,6-MeRC₆H₃OH (R = Me, Et) with
HCHO and R₁R₂NH [R₁ = R₂ = Me, Et; R₁R₂ = (CH₂)₅] yielded
50.5-70% 3,5,4-MeR(HO)C₆H₂CH₂NR₁R₂ (I) and not 2,6-MeRC₆H₃OCH₂NR₁R₂
as assumed by I. Decombe (1933). The structure of I was proved by
NMR spectra and by dehydrogenation of I with EDTA Hg(II) salt which
gave 3,5,4-MeR(HO)C₆H₂CHO.
- IT 50-00-0, reactions
(**Mannich** reaction of, with dialkylphenols and amines)
- RN 50-00-0 HCAPLUS
- CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 109-89-7, reactions 124-40-3, reactions
 (Mannich reaction of, with dialkylphenols and
 formaldehyde)
 RN 109-89-7 HCAPLUS
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



CC 25-10 (Noncondensed Aromatic Compounds)
 ST Mannich base dialkylphenol; alkylphenol Mannich
 base; phenol dialkyl Mannich base
 IT Mannich bases
 (of dialkylphenols)
 IT 576-26-1 1687-64-5
 (Mannich reaction of, with amines and
 formaldehyde)
 IT 50-00-0, reactions
 (Mannich reaction of, with dialkylphenols and amines)
 IT 109-89-7, reactions 110-89-4, reactions 124-40-3
 , reactions
 (Mannich reaction of, with dialkylphenols and
 formaldehyde)

=> d 160 1-15 cbib abs hitstr hitind

L60 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2002 ACS
 2002:811857 Document No. 137:312708 Extractive procedure for the
 purification of long-chain alkylphenols and their Mannich
 adducts. Lange, Arno; Rath, Hans Peter; Walter, Marc (BASF AG,
 Germany). Ger. Offen. DE 10119738 A1 20021024, 4 pp. (German).
 CODEN: GWXXBX. APPLICATION: DE 2001-10119738 20010423.
 AB A procedure for the purifn. of long-chain alkylphenols [e.g., 4-(
 polyisobutenyl)phenol] having an av. mol. wt. of
 200-4000, and Mannich adducts derived from them with
 formaldehyde and secondary amines, is described in which one
 exts. the substituted phenol with an extractant haing a
 polarity ET(30) of 38-57 kcal/mol, a phenol deriv.-contg.
 phase and an extractant phase sep. from each other, and the
 extractant is removed.
 IT 50-00-0DP, Formaldehyde, Mannich adducts
 with 4-(polyisobutenyl)phenol and dimethylamine
 108-95-2DP, Phenol, 4-(polyisobutenyl)

and 2-dimethylamino-4-(polyisobutenyl) derivs.

124-40-3DP, Dimethylamine, 4-(polyisobutenyl)

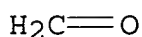
phenols and 2-dimethylamino-4-(polyisobutenyl)

phenols

(extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

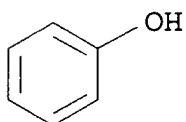
RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC ICM C07C213-10

ICS C07C037-72

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 35, 48

ST polyisobutenylphenol purifn extn; **Mannich** adduct

polyisobutenylphenol purifn extn

IT Phenols, preparation

(alkyl, long-chain alkylphenols having an av. mol. wt. of 200-4000; extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT Extraction

(extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT Extractants

(having a polarity ET(30) of 38-57 kcal/mol in an extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT **Mannich** bases

(phenolic; extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT Amines, preparation

(secondary, **Mannich** adducts with long-chain

alkylphenols and **formaldehyde**; extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0, 2-Propanol, uses 67-64-1, Acetone, uses 71-23-8, 1-Propanol, uses 78-93-3, Butanone, uses (extractant; haing a polarity ET(30) of 38-57 kcal/mol in an extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT 50-00-0DP, **Formaldehyde**, **Mannich** adducts with 4-(**polyisobutenyl**)phenol and dimethylamine 108-95-2DP, **Phenol**, 4-(**polyisobutenyl**) and 2-dimethylamino-4-(**polyisobutenyl**) derivs. 124-40-3DP, Dimethylamine, 4-(**polyisobutenyl**) phenols and 2-dimethylamino-4-(**polyisobutenyl**) phenols 9003-27-4DP, **Polyisobutene**, 4-(**polyisobutenyl**)phenols and 2-dimethylamino-4-(**polyisobutenyl**)phenols (extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

L60 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2002 ACS

2001:265474 Document No. 134:283142 Method for producing

Mannich adducts that contain **polyisobutylene**

phenol. Lange, Arno; Rath, Hans Peter; Posselt, Dietmar;

Troetsch-Schaller, Irene; Walter, Marc (BASF A.-G., Germany). PCT Int. Appl. WO 2001025294 A1 20010412, 52 pp. DESIGNATED STATES: W:

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (German). CODEN: PIXXD2. APPLICATION: WO

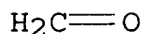
2000-EP9746 20001005. PRIORITY: DE 1999-19948111 19991006.

AB The invention relates to a method for producing **Mannich** adducts that contain **polyisobutylene phenol** by:

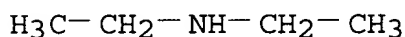
(a) alkylating a **phenol** with highly-reactive **polyisobutylene** at a temp. lower than approx. 50 >C and in the presence of an alkylation catalyst; (b) reacting the reaction product from (a) with **formaldehyde**, an oligomer or with a polymer of the **formaldehyde** and with at least one amine, which has at least one secondary amino function and does not have any primary amino function; or (c) reacting the reaction product from (a) with at least one adduct consisting of at least one amine, which has at least one secondary or primary amino function, and with **formaldehyde**, an oligomer of the **formaldehyde**, a polymer of the **formaldehyde** or with a **formaldehyde** equiv. The invention also relates to **Mannich** adducts that can be obtained by using this method, to the use of the **Mannich** adducts as detergent additives in fuel compns. and

lubricant compns., and to additive concs., fuel compns. and lubricant compns. contg. these **Mannich** adducts.

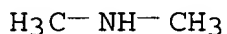
IT 50-00-0, **Formaldehyde**, reactions 109-89-7
 , Diethylamine, reactions 124-40-3, Dimethylamine,
 reactions 142-84-7, Dipropylamine
 (method for producing **Mannich** adducts that contain
polyisobutylene phenol)
 RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCAPLUS
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 142-84-7 HCAPLUS
 CN 1-Propanamine, N-propyl- (9CI) (CA INDEX NAME)



IC ICM C08F008-32
 ICS C10L001-22; C10M159-16
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 ST **Mannich** adduct gasoline detergent additive; lubricant
 detergent additive **Mannich** adduct
 IT **Mannich** reaction
 (adducts; method for producing **Mannich** adducts that
 contain **polyisobutylene phenol**)
 IT Diesel fuel additives
 Gasoline additives
 Lubricating oil additives
 (detergent; method for producing **Mannich** adducts that
 contain **polyisobutylene phenol**)
 IT 50-00-0, **Formaldehyde**, reactions 108-95-2,
Phenol, reactions 109-55-7, 3-(Dimethylamino)propylamine
 109-89-7, Diethylamine, reactions 110-91-8, Morpholine,
 reactions 124-40-3, Dimethylamine, reactions

142-84-7, Dipropylamine 1336-21-6, Ammonium hydroxide
 6711-48-4 9003-27-4, **Polyisobutylene** 26265-75-8,
 Dimethylvinylidene
 (method for producing **Mannich** adducts that contain
polyisobutylene phenol)

L60 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2002 ACS

2001:265473 Document No. 134:283141 Method for producing
Mannich adducts that contain **polyisobutylene**
phenol. Lange, Arno; Rath, Hans Peter; Posselt, Dietmar;
 Troetsch-Schaller, Irene; Walter, Marc (BASF A.-G., Germany). PCT
 Int. Appl. WO 2001025293 A1 20010412, 42 pp. DESIGNATED STATES: W:
 AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR,
 CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID,
 IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
 MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
 SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM,
 CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL,
 PT, SE, SN, TD, TG. (German). CODEN: PIXXD2. APPLICATION: WO
 2000-EP9745 20001005. PRIORITY: DE 1999-19948114 19991006.

AB The invention relates to a method for producing **Mannich**
 adducts that contain **polyisobutylene phenol** by:
 (a) alkylating a **phenol** with highly-reactive
polyisobutylene having a numerical av. mol. wt. of <1 000
 and with a polydispersivity of <3.0, at a temp. lower than
 50.degree. and in the presence of an alkylation catalyst; (b)
 reacting the reaction product from (a) with; (b1) an
aldehyde, selected among **formaldehydes**, with an
 oligomer and with a polymer of the **formaldehyde**, and with;
 (b2) at least one amine which has at least one primary or one
 secondary amino function. The invention also relates to
Mannich adducts that can be obtained by using this method,
 to the use of the **Mannich** adducts as detergent additives
 in fuel compns. and lubricant compns., and to additive concs., fuel
 compns. and lubricant compns. contg. these **Mannich**
 adducts.

IT 50-00-0, **Formaldehyde**, reactions 124-40-3
 , Dimethylamine, reactions
 (method for producing **Mannich** adducts that contain
polyisobutylene phenol)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

$\text{H}_2\text{C}=\text{O}$

RN 124-40-3 HCAPLUS

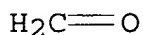
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



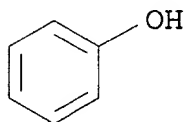
- IC ICM C08F008-32
ICS C10L001-22; C10M159-16
- CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
- ST **Mannich** adduct gasoline detergent additive; lubricant detergent additive **Mannich** adduct
- IT **Mannich** reaction
(adducts; method for producing **Mannich** adducts that contain **polyisobutylene phenol**)
- IT Diesel fuel additives
Gasoline additives
Lubricating oil additives
(detergent; method for producing **Mannich** adducts that contain **polyisobutylene phenol**)
- IT 50-00-0, **Formaldehyde**, reactions 108-95-2, **Phenol**, reactions 109-55-7, 3-(Dimethylamino)propylamine 110-91-8, Morpholine, reactions 124-40-3, Dimethylamine, reactions 1336-21-6, Ammonium hydroxide 6711-48-4 7637-07-2, Boron fluoride (BF₃), reactions 9003-27-4, **Polyisobutylene** (method for producing **Mannich** adducts that contain **polyisobutylene phenol**)
- L60 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2002 ACS
2000:911377 Document No. 134:73887 Polyalkenylphenol-derived aromatic **Mannich** compounds as diesel fuel and gasoline detergents. McAtee, Rodney John (The Lubrizol Corporation, USA). PCT Int. Appl. WO 2000078898 A1 20001228, 24 pp. DESIGNATED STATES: W: CA, SG; RW: BE, DE, ES, FR, GB, IT, NL, SE. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US16600 20000616. PRIORITY: US 1999-337997 19990622.
- AB Arom. **Mannich** compds., as gasoline and diesel fuel detergent additives, are synthesized by reaction of a hydroxy-contg. arom. compd., of formula (R₁)_n(R₂)Ar-(OH)_m (Ar is an arom. group; m = 1, 2, or 3; n = 1-4; R₁ is C<400-hydrocarbyl; and R₂ = H, amino, or carboxyl), with an **aldehyde** or ketone, of general formula R₁-C(:O)-R₂ (R₁ and R₂ = H or C1-18-hydrocarbyl, optionally substituted with a carbonyl-contg. C1-18-hydrocarbyl), and a primary or secondary amine in the presence of an alc. R₁ is preferably derived from a polyolefin, esp. polyisobutylene with no. av. mol. wt. of 300-5000. The amine reactant can be: (1) an amine, of general formula R₁-NH-R₃, in which R₁ and R₃ are H or hydrocarbyl, optionally substituted by amino, hydroxy, or alkoxy groups, or (2) a polyamine, of general formula R₁-NH-(R₂N-R₃)_n-R₄, in which R₁, R₃, and R₄ are H or hydrocarbyl, optionally substituted by hydroxy, amino, or hydroxyamino groups; R₂ is an alkylene group; and n = 0-5.
- IT 50-00-0DP, **Formaldehyde**, **Mannich** reaction products with amines and polyalkenylphenols, uses 108-95-2DP, **Phenol**, **polyisobutenyl** derivs., **Mannich** reaction products with **paraformaldehyde** and ethylenediamine, uses

111-92-2DP, Dibutylamine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 124-40-3DP, Dimethylamine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 624-78-2DP, N-Methylethylamine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 2439-54-5DP, N-Methyloctylamine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 315662-91-0DP, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes**
 (detergents; **polyalkenylphenol**-derived arom.
Mannich compds. as diesel fuel and gasoline detergents)

RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



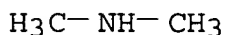
RN 108-95-2 HCAPLUS
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



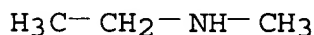
RN 111-92-2 HCAPLUS
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 624-78-2 HCAPLUS
 CN Ethanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 2439-54-5 HCAPLUS
 CN 1-Octanamine, N-methyl- (9CI) (CA INDEX NAME)

Me- (CH₂)₇-NHMe

RN 315662-91-0 HCAPLUS
CN Propanol, 1-(propylamino)- (9CI) (CA INDEX NAME)

n-Pr-NH-Pr-n

D1-OH

IC ICM C10L001-22
ICS C10L001-14; C07C213-08; C08F008-32; C07C209-60
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
ST arom **Mannich** base fuel detergent; diesel fuel detergent
arom **Mannich** base; gasoline detergent arom **Mannich**
base
IT Diesel fuel additives
Gasoline additives
(detergents; polyalkenylphenol-derived arom. **Mannich**
compds. as diesel fuel and gasoline detergents)
IT **Mannich** bases
(detergents; polyalkenylphenol-derived arom. **Mannich**
compds. as diesel fuel and gasoline detergents)
IT Detergents
(gasoline additive; polyalkenylphenol-derived arom.
Mannich compds. as diesel fuel and gasoline detergents)
IT **Mannich** bases
(phenolic, detergents; polyalkenylphenol
-derived arom. **Mannich** compds. as diesel fuel and
gasoline detergents)
IT 50-00-0DP, Formaldehyde, **Mannich**
reaction products with amines and polyalkenylphenols, uses
50-00-0DP, Formaldehyde, **Mannich**
reaction products with ethylenediamine and polyisobutenylphenol,
uses 56-18-8DP, 1,3-Propanediamine, N-(3-aminopropyl)-,
Mannich reaction products with polyalkenylphenols and
ketones or aldehydes 62-53-3DP, Aniline, **Mannich**
reaction products with polyalkenylphenols and ketones or
aldehydes 67-64-1DP, Acetone, **Mannich** reaction
products with amines and polyalkenylphenols 74-89-5DP,
Methylamine, **Mannich** reaction products with
polyalkenylphenols and ketones or aldehydes 75-07-0DP,
Acetaldehyde, **Mannich** reaction products with
amines and polyalkenylphenols, uses 78-90-0DP, Propylenediamine,
Mannich reaction products with polyalkenylphenols and
ketones or aldehydes 78-93-3DP, Methyl ethyl ketone,

Mannich reaction products with amines and polyalkenylphenols
 95-54-5DP, o-Phenylenediamine, **Mannich** reaction products
 with polyalkenylphenols and ketones or **aldehydes**
 96-20-8DP, 2-Amino-1-butanol, **Mannich** reaction products
 with polyalkenylphenols and ketones or **aldehydes**
 100-52-7DP, **Benzaldehyde**, **Mannich** reaction
 products with amines and polyalkenylphenols, uses 101-77-9DP,
 Bis-(p-aminophenyl)methane, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 103-76-4DP,
 1-Piperazineethanol, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 107-15-3DP,
 Ethylenediamine, **Mannich** reaction products with
 ethylenediamine and polyisobutenylphenol 107-22-2DP, Glyoxal,
Mannich reaction products with amines and polyalkenylphenols
 108-78-1DP, Melamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 108-91-8DP,
 Cyclohexylamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes**
 108-95-2DP, **Phenol**, polyisobutenyl
 derivs., **Mannich** reaction products with
paraformaldehyde and ethylenediamine, uses 109-76-2DP,
 Trimethylenediamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 110-62-3DP,
Valeraldehyde, **Mannich** reaction products with
 amines and polyalkenylphenols 110-85-0DP, Piperazine,
Mannich reaction products with polyalkenylphenols and
 ketones or **aldehydes**, uses 110-88-3DP, Trioxane,
Mannich reaction products with ethylenediamine and
 polyisobutenylphenol 110-90-7DP, Hexahydro-1,3,5-triazine,
Mannich reaction products with polyalkenylphenols and
 ketones or **aldehydes** 110-91-8DP, Morpholine,
Mannich reaction products with polyalkenylphenols and
 ketones or **aldehydes**, uses 110-97-4DP, 2-Propanol,
 1,1'-iminobis-, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 111-42-2DP,
 Diethanolamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes**
 111-92-2DP, Dibutylamine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 112-24-3DP, Triethylenetetramine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 112-57-2DP, Tetraethylenepentamine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 115-69-5DP, 2-Amino-2-methyl-1,3-propanediol, **Mannich**
 reaction products with polyalkenylphenols and ketones or
aldehydes 115-70-8DP, 2-Amino-2-ethyl-1,3-propanediol,
Mannich reaction products with polyalkenylphenols and
 ketones or **aldehydes** 120-72-9DP, Indole, **Mannich**
 reaction products with polyalkenylphenols and ketones or
aldehydes 123-38-6DP, **Propionaldehyde**,
Mannich reaction products with amines and polyalkenylphenols
 123-72-8DP, **Butyraldehyde**, **Mannich** reaction

products with amines and polyalkenylphenols 123-75-1DP,
 Pyrrolidine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes**, uses
 124-22-1DP, Dodecylamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 124-30-1DP,
 Octadecylamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes**
 124-40-3DP, Dimethylamine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 124-68-5DP, 2-Amino-2-methyl-1-propanol, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 141-43-5DP, Ethanolamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 156-87-6DP,
 3-Amino-1-propanol, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 288-88-0DP,
 1H-1,2,4-Triazole, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 289-95-2DP,
 Pyrimidine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 298-12-4DP,
 Glyoxylic acid, **Mannich** reaction products with amines and
 polyalkenylphenols 373-44-4DP, Octamethylenediamine,
Mannich reaction products with polyalkenylphenols and
 ketones or **aldehydes** 504-76-7DP, Oxazolidine,
Mannich reaction products with polyalkenylphenols and
 ketones or **aldehydes** 589-38-8DP, Ethyl propyl ketone,
Mannich reaction products with amines and polyalkenylphenols
 591-78-6DP, Butyl methyl ketone, **Mannich** reaction products
 with amines and polyalkenylphenols 624-78-2DP,
 N-Methylethylamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 646-25-3DP,
 Decamethylenediamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 939-06-0DP,
 1H-Imidazole, 4,5-dihydro-4-methyl-2-phenyl-, **Mannich**
 reaction products with polyalkenylphenols and ketones or
aldehydes 1615-03-8DP, 1H-Imidazole, 4,5-dihydro-4-methyl-
 , **Mannich** reaction products with polyalkenylphenols and
 ketones or **aldehydes** 2439-54-5DP,
 N-Methyloctylamine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 2842-38-8DP,
 N-(2-Hydroxyethyl)-cyclohexylamine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 4067-16-7DP, Pentaethylenehexamine, **Mannich** reaction
 products with polyalkenylphenols and ketones or **aldehydes**
 4377-73-5DP, p-Quinonediimine, **Mannich** reaction products
 with polyalkenylphenols and ketones or **aldehydes**
 4430-06-2DP, 1,7-Heptanediamine, N-(7-aminoheptyl)-, **Mannich**
 reaction products with polyalkenylphenols and ketones or
aldehydes 4511-99-3DP, 3-Amino-5,6-diphenyl-1,2,4-
 triazine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 4605-14-5DP,
 Tripropylenetetramine, **Mannich** reaction products with
 polyalkenylphenols and ketones or **aldehydes** 6168-72-5DP,

2-Amino-1-propanol, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 6531-38-0DP, 1,4-Bis(2-aminoethyl)piperazine, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 7347-31-1DP, 1H-Imidazole, 4,5-dihydro-2-octadecyl-, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 7664-41-7DP, Ammonia, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes**, uses 10368-06-6DP, 1,4-Benzenediamine, N,N'-dibutyl-, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 13325-10-5DP, 4-Hydroxybutylamine, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 13725-38-7DP, Cyclopentanol, 3-amino-, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 14002-33-6DP, 1-Propanol, 3,3'-iminobis-, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 15518-10-2DP, 3-Amino-2-methyl-1-propanol, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 26976-66-9DP, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 30525-89-4DP, **Paraformaldehyde**, **Mannich** reaction products with ethylenediamine and polyisobutenylphenol 39884-48-5DP, 3-Hydroxybutylamine, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 77029-60-8DP, 1-Piperazineethanamine, ..alpha..-methyl-, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 167427-04-5DP, Pyrazine, tetrahydro-, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 315661-54-2DP, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 315661-55-3DP, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 315661-56-4DP, 1H-Imidazole-1,3(2H)-diethanamine, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 315661-57-5DP, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes** 315662-91-0DP, **Mannich** reaction products with polyalkenylphenols and ketones or **aldehydes**

(detergents; polyalkenylphenol-derived arom.

Mannich compds. as diesel fuel and gasoline detergents)

IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0, Isopropanol, uses 71-23-8, n-Propanol, uses 71-36-3, n-Butanol, uses 71-41-0, n-Pentanol, uses 96-41-3, Cyclopentanol 104-76-7, 2-Ethylhexanol 107-18-6, Allyl alcohol, uses 108-11-2, 2-Methyl-4-pentanol 108-93-0, Cyclohexanol, uses 111-27-3, n-Hexanol, uses 111-70-6, 1-Heptanol 111-87-5, Octanol, uses 112-30-1, Decanol 112-53-8, Dodecanol 112-72-1, Tetradecanol 112-92-5, Octadecanol 123-51-3, Isopentanol 598-32-3, Methyl vinyl carbinol 6117-91-5, Crotyl alcohol 36653-82-4, Hexadecanol (solvent; polyalkenylphenol-derived arom. **Mannich**

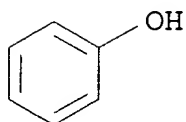
comps. as diesel fuel and gasoline detergents)

L60 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2002 ACS
 1999:44925 Document No. 130:109712 Water-in-oil emulsion fertilizer compositions. Jahnke, Richard W.; Forsberg, John W.; Pearson, Nils O. (The Lubrizol Corporation, USA). U.S. US 5858055 A 19990112, 12 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-946399 19971007.

AB A nonexplosive water-in-oil emulsion fertilizer compn. is provided which comprises: a discontinuous aq. phase comprising at least one fertilizer component; a continuous oil phase; an emulsifier comprising the **Mannich** reaction product of at least one hydrocarbyl-substituted phenol with at least one amine and at least one **aldehyde**.

IT **108-95-2D, Phenol, Polypropenyl** deriv., uses **109-89-7D, Diethylamine, Mannich** reaction product with propylene-substituted phenol and **paraformaldehyde** (emulsifier in water-in-oil emulsion fertilizer compns.)

RN 108-95-2 HCAPLUS
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCAPLUS
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

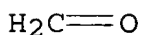


IC ICM C05C011-00
 NCL 071027000
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST **Mannich** reaction product emulsifier fertilizer emulsion
 IT Emulsifying agents (Mannich reaction products; for water-in-oil emulsion fertilizer compns.)

IT 61-82-5D, 3-Amino-1H-1,2,4-triazole, **Mannich** reaction product with hydrocarbyl-substituted phenol and **paraformaldehyde 108-95-2D, Phenol, Polypropenyl** deriv., uses 108-95-2D, Phenol, hydrocarbyl-substituted, **Mannich** reaction product with ammonia and **paraformaldehyde**, uses 109-89-7D, Diethylamine, **Mannich** reaction product with propylene-substituted phenol and **paraformaldehyde 111-41-1D, Mannich** reaction product with

hydrocarbyl-substituted phenol and **paraformaldehyde**
 111-42-2D, DiEthanolamine, **Mannich** reaction product with
 propylene-substituted phenol and **paraformaldehyde**
 141-43-5D, Ethanolamine, **Mannich** reaction product with
 propylene-substituted phenol and **paraformaldehyde**
 504-29-0D, 2-Aminopyridine, **Mannich** reaction product with
 propylene-substituted phenol and **paraformaldehyde**
 7664-41-7D, Ammonia, **Mannich** reaction product with
 hydrocarbyl-substituted phenol and **paraformaldehyde**, uses
 30525-89-4D, **Paraformaldehyde**, **Mannich** reaction
 product with hydrocarbyl-substituted phenol and amine
 (emulsifier in water-in-oil emulsion fertilizer compns.)

- L60 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2002 ACS
 1995:426686 Document No. 122:192173 Two-stroke cycle lubricant and
 method of using it. Chamberlin, William B. (Lubrizol Corp., USA).
 Eur. Pat. Appl. EP 628622 A1 19941214, 25 pp. DESIGNATED STATES: R:
 BE, DE, ES, FR, GB, IT, NL, SE. (English). CODEN: EPXXDW.
 APPLICATION: EP 1994-303671 19940523. PRIORITY: US 1993-67780
 19930526.
- AB A lubricant compn. suitable for fuel injected two-stroke cycle
 engines includes an oil of lubricating viscosity, and amt.,
 sufficient to reduce or prevent piston scuffing, of a mixt. of (A)
 at least one phenol selected from (A-1) an aminophenol and (A-2) a
 reaction product of a nitrophenol and an amino compd., and (B) at
 least one **Mannich** dispersant, amine dispersant,
 nitrogen-contg. carboxylic dispersant, or ester dispersant. The
 compn. further includes an amt., sufficient to reduce degrdn. of the
 lubricant compn. upon exposure to oxygen or oxides of nitrogen, of a
 nitrogen-contg. inhibitor, a hindered phenol inhibitor, or a
 sulfur-contg. org. inhibitor.
- IT 50-00-0D, **Formaldehyde**, reaction products with
 polypropyl-substituted phenol and dimethylamine 124-40-3D,
 Dimethylamine, reaction products with polypropyl-substituted phenol
 and **formaldehyde**
 (dispersants; two-stroke cycle lubricants contg.)
- RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)

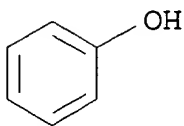


- IT 108-95-2D, **Phenol**, polybutene
 -substituted derivs., amine derivs.

(two-stroke cycle lubricants contg.)

RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



IC ICM C10M133-00

ICS C10M141-06; C10M141-08; C10M163-00

ICA C10N040-26

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

IT 50-00-0D, **Formaldehyde**, reaction products with polypropyl-substituted phenol and dimethylamine 77-86-1D, reaction products with polybutenylsuccinic anhydride and HPA Taft amines 79-10-7D, 2-Propenoic acid, reaction products with chlorinated polybutene and pentaerythritol 112-57-2D, reaction products with poly(iso)butenylsuccinic anhydride 115-77-5D, reaction products with chlorinated polybutene and acrylic acid 124-40-3D, Dimethylamine, reaction products with polypropyl-substituted phenol and **formaldehyde** 126-30-7D, reaction products with polybutene-substituted succinic anhydride (dispersants; two-stroke cycle lubricants contg.)

IT 108-30-5D, Succinic anhydride, polyisobutyl derivs., reaction products with polyethyleneamines 108-95-2D, **Phenol**, **polybutene**-substituted derivs., amine derivs. 24925-59-5 43126-79-0 (two-stroke cycle lubricants contg.)

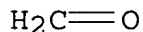
L60 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2002 ACS

1989:138508 Document No. 110:138508 **Mannich** base oil additives. Horodysky, Andrew G.; Gemmill, Robert M., Jr. (Mobil Oil Corp., USA). U.S. US 4787996 A 19881129, 6 pp. Cont. of U.S. Ser. No. 868,181, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1987-38468 19870414. PRIORITY: US 1981-329773 19811211; US 1983-485525 19830415; US 1985-705867 19850228; US 1986-868181 19860521.

AB A lubricating oil-fuel oil additive is prepd. by reaction of (1) a medium mol. wt. alkyl-substituted **phenol**, where the alkyl substituent is a branched oligomer made from a 1-olefin and having .ltoreq.40 C atoms, (2) an **aldehyde**, and (3) a hydrocarbonyl amine, where the resp. molar ratio of the reactants is 1:1-2:1-2. Thus, cocoamine 42, 1-decene trimer alkylated **phenol** 72, **paraformaldehyde** 6.5, and C₆H₆ (solvent) 100 g were placed in a glass reactor fitted with a N inlet and a condenser. The reaction mixt was heated in a N blanket to 115.degree. and the solvent was removed by vacuum distn. The product was filtered through diatomaceous earth at 70.degree. and evaluated in a low-velocity friction app. using a fully formulated

5W-20 engine oil. For an additive concn. of 4% in the oil, the redn. in the friction coeff. was 20-25%.

IT **50-00-0DP, Formaldehyde, Mannich** bases
with phenols and amines
(lubricating and fuel oil additives, prepn. of)
RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT **111-92-2DP, Dibutylamine, Mannich** bases with
alkylphenols and **formaldehyde 1120-48-5DP**,
Dioctylamine, **Mannich** bases with alkylphenols and
formaldehyde
(lubricating oil and fuel oil additives, prepn. of)
RN 111-92-2 HCAPLUS
CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 1120-48-5 HCAPLUS
CN 1-Octanamine, N-octyl- (9CI) (CA INDEX NAME)



IC ICM C10M133-00
NCL 252051500R
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
ST lubricating oil additive **Mannich** base; fuel oil additive
Mannich base; **Mannich** base lubricating oil
additive
IT Fuel oil additives
Lubricating oil additives
(**Mannich** bases, prepn. of)
IT **Mannich** bases
(alkylphenol-coco alkyl amine-**formaldehyde**, prepn. of,
for lubricants and fuels)
IT **Mannich** bases
(alkylphenol-**formaldehyde**-soya alkyl amine, prepn. of,
for lubricants and fuels)
IT **50-00-0DP, Formaldehyde, Mannich** bases
with phenols and amines 108-95-2DP, Phenol, alkali derivs.,
Mannich bases with **aldehydes** and amines
(lubricating and fuel oil additives, prepn. of)
IT 75-07-0DP, **Acetaldehyde, Mannich** bases with
alkylphenols and amines 78-90-0DP, Propylenediamine,

Mannich bases with alkylphenols and formaldehyde
 87-99-ODP, Xylitol, alkyl derivs., **Mannich bases with aldehydes and amines** 90-15-3DP, 1-Naphthalenol, alkyl derivs., **Mannich bases with aldehydes and amines** 98-01-1DP, Furfural, **Mannich bases with alkylphenols and amines** 100-52-7DP, **Benzaldehyde, Mannich bases with alkylphenols and amines** 101-83-7DP, Dicyclohexylamine, **Mannich bases with alkylphenols and formaldehyde** 107-15-3DP, Ethylenediamine, **Mannich bases with alkylphenols and formaldehyde** 107-89-1DP, .beta.-**Hydroxybutyraldehyde, Mannich bases with alkylphenols and amines** 108-91-8DP, Cyclohexylamine, **Mannich bases with alkylphenols and formaldehyde** 108-95-2DP, Phenol, alkyl derivs., **Mannich bases with aldehydes and amines** 110-90-7DP, Trimethylenetriamine, **Mannich bases with alkylphenols and formaldehyde** 111-40-0DP, Diethylenetriamine, **Mannich bases with alkylphenols and formaldehyde** 111-42-2DP, Diethanolamine, **Mannich bases with alkylphenols and formaldehyde** 111-86-4DP, Octylamine, **Mannich bases with alkylphenols and formaldehyde** 111-92-2DP, Dibutylamine, **Mannich bases with alkylphenols and formaldehyde** 112-20-9DP, Nonylamine, **Mannich bases with alkylphenols and formaldehyde** 112-24-3DP, Triethylenetetramine, **Mannich bases with alkylphenols and formaldehyde** 112-57-2DP, Tetraethylenepentamine, **Mannich bases with alkylphenols and formaldehyde** 112-90-3DP, Oleylamine, **Mannich bases with alkylphenols and formaldehyde** 124-22-1DP, Dodecylamine, **Mannich bases with alkylphenols and formaldehyde** 124-30-1DP, Octadecylamine, **Mannich bases with alkylphenols and formaldehyde** 135-19-3DP, Beta naphthol, alkyl derivs., **Mannich bases with aldehydes and amines** 141-43-5DP, Ethanolamine, **Mannich bases with alkylphenols and formaldehyde** 143-27-1DP, Hexadecylamine, **Mannich bases with alkylphenols and formaldehyde** 1120-48-5DP, Dioctylamine, **Mannich bases with alkylphenols and formaldehyde** 1319-77-3DP, Cresol, alkyl derivs., **Mannich bases with aldehydes and amines** 1322-20-9DP, Hydroxydiphenyl, alkyl derivs., **Mannich bases with aldehydes and amines** 1322-51-6DP, Benzylphenol, alkyl derivs., **Mannich bases with aldehydes and amines** 2016-42-4DP, Tetradecylamine, **Mannich bases with alkylphenols and formaldehyde** 2016-57-1DP, Decylamine, **Mannich bases with alkylphenols and formaldehyde** 4403-32-1DP, Hexaethyleneheptamine, **Mannich bases with alkylphenols and formaldehyde** 5452-37-9DP, Cyclooctylamine, **Mannich bases with alkylphenols and formaldehyde**
 (lubricating oil and fuel oil additives, prepn. of)

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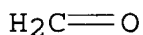
1988:633982 Document No. 109:233982 Phosphite ester compositions, and lubricants and functional fluids containing same as extreme-pressure and/or friction-modifying additives. Scharf, Curtis R.; Di Biase, Stephen A.; Tritt, William C. (Lubrizol Corp., USA). PCT Int. Appl. WO 8804313 A2 19880616, 104 pp. DESIGNATED STATES: RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1987-US3211 19871204. PRIORITY: US 1986-940693 19861211.

AB Lubricating oil and grease, functional fluid, and aq. system comps. comprise an extreme-pressure and/or friction-modifying amt. of (A) >1 phosphite ester characterized by the formula (R1O)(R2O)P(O)H (R1 = C512 straight-chain hydrocarbyl, R2 = C.1toreq.12 branched-chain hydrocarbyl), and or (B) >1 S-contg. compn. selected from (1) >1 sulfurized olefin, (2) hydroxythioether, (3) N- and S-contg. comps. obtained by the reaction of >1 amino compd., CS2, and either hydrocarbon-substituted carboxylic acids or halogenated aliph. hydrocarbons, and (4) sulfurized and/or CS2 reacted **Mannich** condensation products. Thus, a lubricating oil compn. contains a mixed phosphite (reaction products of 2-ethylhexanol, Alfol 810, and di-Me phosphite) 0.80, a hydroxythioether (propylene oxide-tert-dodecyl mercaptan reaction products) 0.75, C9 mono- and di-p-alkylated diphenylamine 0.35, basic Na petroleum sulfonate 0.25, basic Ca petroleum sulfonate 0.40 wt. part, 70 ppm silicone antifoam agent, and remainder a base oil.

IT 50-00-0D, **Formaldehyde**, **Mannich** reaction products with alkyl-substituted **phenol**, alkylene polyamine, carbon disulfide, and/or **polybutenyl** succinic anhydride 2050-92-2D, Diamylamine, reaction products with polyisobutenyl and carbon disulfide chloride (extreme-pressure and/or friction-modifying additives contg., for lubricants and functional fluids)

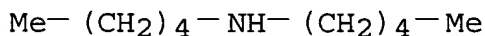
RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 2050-92-2 HCAPLUS

CN 1-Pentanamine, N-pentyl- (9CI) (CA INDEX NAME)



IC ICM C10M141-10

ICS C10M137-04; C10M173-02

ICI C10M141-10, C10M133-52, C10M135-02, C10M135-24, C10M137-04, C10M159-16; C10M173-02, C10M133-52, C10M135-02, C10M135-24, C10M137-04, C10M159-16; C10N030-06, C10N040-04, C10N060-10

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

IT 50-00-0D, **Formaldehyde**, **Mannich** reaction products with alkyl-substituted **phenol**, alkylene polyamine, carbon disulfide, and/or **polybutenyl** succinic anhydride 60-24-2D, 2-Mercaptoethanol, reaction products with 1-decene 71-36-3D, n-Butanol, reaction products with dimethylphosphite and 2-ethylhexanol 75-15-0D, Carbon disulfide, reaction products with polyisobutenyl succinic anhydride or chloride and polyalkylene polyamines 75-21-8D, Ethylene oxide, reaction products with tert-dodecyl mercaptan 75-56-9D, Propylene oxide, reaction products with (poly)mercaptans 96-09-3D, Styrene oxide, reaction products with tert-dodecyl mercaptan 104-76-7D, reaction products with dimethylphosphite and alcs. 108-30-5D, Succinic anhydride, polyisobutenyl derivs., reaction products with polyalkylene polyamines and carbon disulfide 108-95-2D, Phenol, polybutyl-substituted, reaction products with **formaldehyde**, tetraethylenepentamine, and carbon disulfide 111-40-0D, Diethylenetriamine, reaction products with polyisobutenyl and carbon disulfide chloride 112-24-3D, Triethylene tetramine, reaction products with polysibutylene-substituted succinic anhydride and carbon disulfide 112-55-0D, n-Dodecyl mercaptan, reaction products with propylene oxide 112-57-2D, Tetraethylenepentamine, reaction products with polysibutylene-substituted succinic anhydride and carbon disulfide 868-85-9D, Dimethylphosphite, reaction products with straight- and branched-chain alcs. 872-05-9D, 1-Decene, reaction products with 2-mercaptoethanol 2050-92-2D, Diamylamine, reaction products with polyisobutenyl and carbon disulfide chloride 4067-16-7D, Pentaethylenehexamine, reaction products with polyisobutenyl and carbon disulfide chloride 7704-34-9D, Sulfur, reaction products with **Mannich** condensates 9003-07-0D, Polypropylene, mixts. with pine oil, sulfurized 9003-27-4D, chloride 9003-29-6D, mercapto derivs. 25103-58-6D, tert-Dodecyl mercaptan, reaction products with epoxides 25154-52-3D, reaction products with tetraethylenepentamine, **formaldehyde**, polybutenyl succinic anhydride, and carbon disulfide 57425-57-7D, Polyamine H, reaction products with polyisobutylene-substituted succinic anhydride and carbon disulfide (extreme-pressure and/or friction-modifying additives contg., for lubricants and functional fluids)

L60 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2002 ACS

1987:535973 Document No. 107:135973 Cationic epoxy resins. Paar, Willibald; Hoenel, Michael (Vianova Kunstharz A.-G., Austria). Eur. Pat. Appl. EP 213626 A2 19870311, 21 pp. DESIGNATED STATES: R: BE, CH, DE, FR, GB, IT, LI, NL, SE. (German). CODEN: EPXXDW. APPLICATION: EP 1986-112063 19860901. PRIORITY: AT 1985-2591 19850905; AT 1986-2060 19860731.

AB Compns. useful as binders for cathodic electrodep coatings are prepd. by the reaction of adducts of 2 mol reaction product of phenols, **HCHO**, and primary amines and 1 mol diisocyanate with diepoxides (phenolic OH-epoxy group ratio 1:1) and reaction of residual epoxy groups with amines and/or carboxyl compds. A 70g soln. of adduct (mol. wt. 820) was prepd. from butylphenol 300, 91%

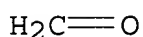
paraformaldehyde 66, iso-BuNH₂ 146, and trimethylhexamethylene isocyanate 210 parts. Heating this compn. 181, bisphenol A epoxy resin (epoxy equiv. 475) 475, Et₃N 0.5, and methoxypropanol 204 parts at 110.degree., cooling, heating with 26 parts Et₂N(CH₂)₃NH₂ and 21 parts diethanolamine at 80.degree., and dilg. with methoxypropanol to 65% solids gave a compn. with amine no. 51 mg KOH/g. A dispersion of this resin (HCO₂H-neutralized) 80, malonate ester crosslinker 20, and H₂O 595 parts gave a film with cure time 30 min at 165.degree..

IT **50-00-0D, Formaldehyde**, reaction products with phenols, amines, diisocyanates and epoxy resins **109-89-7D**, Diethylamine, reaction products with epoxy resins and **Mannich** bases

(binders, for cathodic electrodeposit coatings)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM C08G059-18

ICS C08G059-14; C08G059-40; C08G014-12; C08G018-54; C09D005-44

CC 42-7 (Coatings, Inks, and Related Products)

ST electrophoretic coating cathodic binder; epoxy resin adduct coating; **Mannich** base adduct coating; isocyanate adduct coating; butylphenol **Mannich** base coating; aminated epoxy resin coating

IT **Mannich** bases

(reaction products with epoxy resins and amines, binders for cathodic electrodeposit coatings)

IT Amines, compounds

(reaction products with **formaldehyde**, phenols, diisocyanates and epoxy resins, for cathodic electrodeposit coatings)

IT Phenols, compounds

(reaction products with **formaldehydes**, amines, diisocyanates and epoxy resins, for cathodic electrodeposit coatings)

IT Coating materials

(electrophoretic, cathodic, binders for, epoxy resin-**Mannich** base-amine reaction products as)

IT **50-00-0D, Formaldehyde**, reaction products with phenols, amines, diisocyanates and epoxy resins **78-81-9D**, **Isobutylamine**, reaction products with **formaldehyde**, phenols, and epoxy resins **78-96-6D**, Isopropanolamine, reaction products with **formaldehyde**, phenols, and epoxy

resins 80-05-7D, Bisphenol A, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 104-75-6D, 2-Ethylhexylamine, reaction products with epoxy resins and **Mannich** bases 104-78-9D, N,N-Diethyl-1,3-propanediamine, reaction products with **formaldehyde**, phenols, and epoxy resins 108-95-2D, Phenol, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 109-55-7D, N,N-Dimethyl-1,3-propanediamine, reaction products with epoxy resins and **Mannich** bases 109-83-1D, 2-(Methylamino)ethanol, reaction products with epoxy resins and **Mannich** bases 109-89-7D, Diethylamine, reaction products with epoxy resins and **Mannich** bases 111-26-2D, Hexylamine, reaction products with **formaldehyde**, phenols, and epoxy resins 111-42-2D, Diethanolamine, reaction products with epoxy resins and **Mannich** bases 576-26-1D, 2,6-Dimethylphenol, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 4098-71-9D, Isophoronediiisocyanate, reaction products with **Mannich** bases and epoxy resins 25068-38-6D, reaction products with **Mannich** bases and amines 25154-52-3D, Nonylphenol, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 26471-62-5D, reaction products with **Mannich** bases and epoxy resins 28679-16-5D, Trimethylhexamethyleneisocyanate, reaction products with **Mannich** bases and epoxy resins 28805-86-9D, Butylphenol, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 54634-94-5D, reaction products with epoxy resins and **Mannich** bases 63306-05-8D, reaction products with epoxy resins and **Mannich** bases 87139-40-0D, Bisphenol F, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 107375-15-5D, reaction products with epoxy resins and **Mannich** bases 110217-16-8D, reaction products with **Mannich** bases and epoxy resins
(binders, for cathodic electrocoatings)

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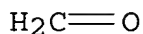
1985:169533 Document No. 102:169533 Alkylphenol and aminophenol compositions and two-cycle engine oils and fuels containing same. Davis, Kirk Emerson (Lubrizol Corp. , USA). PCT Int. Appl. WO 8403901 A1 19841011, 78 pp. DESIGNATED STATES: W: AU, BR, DK, FI, JP, NO; RW: BE, DE, FR, GB, NL, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1984-US456 19840323. PRIORITY: US 1983-481109 19830331.

AB Lubricating oil additive compns. contain at least one alkylphenol and one aminophenol; these additives can be added to lubricating oil for use in 2-cycle engines. INT: Thus, a 2-cycle engine oil blend consisting of polyisobutenylphenol (polyisobutene no.-av. mol. wt. 1000) 2.0, aminophenol (prepd. by treating a polyisobutenylphenol with HNO₃ and redn. to amine form by H in presence by Pt oxide) 4.0, acylated polyamine detergent (prepd. by reacting tetraethylenepentamine with isostearic acid) 2.5, and lubricating base oil 91.5 wt. parts, well illustrates the invention.

IT 50-00-0D, Mannich reaction products with phenols and amines 108-95-2D, aminoalkyl and polyalkenyl derivs. 124-40-3D, Mannich reaction products with phenols and formaldehyde (lubricating oil additives)

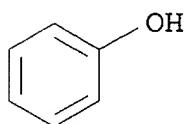
RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



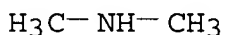
RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C10M001-34; C10M001-20; C10M001-14

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

IT 50-00-0D, Mannich reaction products with phenols and amines 50-70-4D, esters with polyisobutylcarboxylic acid 80-05-7D, alkyl derivs. 90-15-3D, alkyl derivs. 91-22-5D, alkyl derivs. 92-88-6D, alkyl derivs. 108-95-2D, aminoalkyl and polyalkenyl derivs. 109-00-2D, alkyl derivs. 112-57-2D, reaction products with isostearic acid 115-77-5D, esters with polyisobutylcarboxylic acid 124-40-3D, Mannich reaction products with phenols and formaldehyde 126-30-7D, ester with alkyl succinic anhydride 613-14-9D, alkyl derivs. 21093-23-2 30399-84-9D, reaction products with polyethylene polyamines (lubricating oil additives)

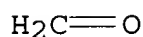
L60 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2002 ACS

1984:71066 Document No. 100:71066 Lubricant compositions, containing alkylphenols, for 2-stroke engines. Davis, Kirk Emerson (Lubrizol Corp., USA). Ger. Offen. DE 3320396 A1 19831208, 81 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1983-3320396 19830606. PRIORITY: US 1982-385990 19820607.

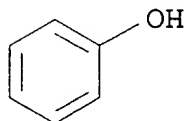
AB Lubricating oil compns. for 2-stroke engines contain 4.5-15% of an alkylated phenol or its derivs. and 1.5-3% of a

detergent-dispersant compn. Suitable alkylphenol compns. include **polyisobutenylphenol**, polypropylenephenol (or their bis(methylol) derivs.), and alkyl derivs. of dihydroxybiphenyl, resorcinol, .alpha.-naphthol, anthracenol, quinolinol, and hydroxypyridine. The detergents-dispersants include overbased alk. earth metal additives, **Mannich** bases, polyacid-polyamine condensation products, and polyacid-alc. condensation products (e.g., reaction products of **polyisobutenylsuccinic** anhydride with neopentyl glycol and pentaerythritol).

IT 50-00-0D, reaction products with polyalkenylphenols
108-95-2D, **polyalkenyl** derivs., reaction products
with **formaldehyde** and amines 124-40-3D, reaction
products with polypropenylphenol and **formaldehyde**
(lubricating oil additives, for two-stroke engines)
RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS
CN Phenol (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C10M001-20; C10M003-14
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
IT **Mannich** bases
(lubricating oil additives, for two-stroke engines)
IT 50-00-0D, reaction products with polyalkenylphenols
50-70-4D, reaction products with acrylic acid and chlorinated
polyisobutene 79-10-7D, reaction products with chlorinated
polyisobutene and sorbitol or pentaerythritol 90-15-3D,
4-polyisobutenyl derivs. 92-88-6D, 2,2'-bis(polyisobutenyl)
derivs. 108-30-5D, polyisobutenyl derivs., reaction products with
acids and alcs. or polyamines 108-95-2D,
polyalkenyl derivs., reaction products with
formaldehyde and amines 109-00-2D, 4-polyisobutenyl
derivs. 111-40-0D, reaction products with isostearic acid

112-57-2D, reaction products with chlorinated polyisobutene
 115-77-5D, mixed esters with polyisobutene-derived carboxylic acids
124-40-3D, reaction products with polypropenylphenol and
formaldehyde 148-24-3D, polypropenyl derivs. 9002-98-6D,
 reaction products with polyisobutenylsuccinic anhydride
 9003-27-4D, chloro derivs., reaction products with polyamines or
 acrylic acid-alc. condensation products 21093-23-2 30399-84-9D,
 reaction products with polyamines and polyisobutenylsuccinic
 anhydride 88707-55-5
 (lubricating oil additives, for two-stroke engines)

L60 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2002 ACS
 1979:613692 Document No. 91:213692 Sulfurized **mannich**
 condensation products and lubricants containing them. Davis, Kirk
 E. (Lubrizol Corp., USA). U.S. US 4161475 19790717, 7 pp.
 Cont.-in-part of U.S. 4,090,854. (English). CODEN: USXXAM.
 APPLICATION: US 1977-834618 19770919.
 AB Lubricating oil sludge dispersants were prepd. by treating a
Mannich condensation product of a **phenolic** compd.,
 an **aldehyde**, and an amine with elemental S. Thus, 400
 parts **polyisobutenylphenol** was reacted with 12 parts
paraformaldehyde and 41 parts pentaethylenehexamine at
 140.degree. for 4 h under N. An addnl. 12 parts
paraformaldehyde was added, and the mixt. was reacted at
 160.degree. for 12 h. The product contained 1.87% N and it was
 reacted with S flowers at 160.degree. for 10 h to contain 1.43% S
 and 1.79% N. The **Mannich** condensate is used at 1-10%
 concn. based on the total vol. of the lubricant.
 IT **50-00-0D**, reaction products with amines and alkylphenols
124-40-3D, reaction products with **formaldehyde** and
 alkylphenols
 (lubricating oil dispersants)
 RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

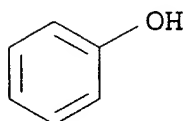
$\text{H}_2\text{C}=\text{O}$

RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)

$\text{H}_3\text{C}-\text{NH}-\text{CH}_3$

IC C07G017-00
 NCL 260132000
 CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
 ST **Mannich** condensation product dispersant lubricant
 IT Lubricating oil additives
 (dispersants, sulfurized **Mannich** condensation products)

- IT 50-00-0D, reaction products with amines and alkylphenols
 106-50-3D, reaction products with alkylphenols and
paraformaldehyde 108-95-2D, alkyl derivs., reaction
 products with **formaldehyde** and amines 110-91-8D,
 reaction products with **formaldehyde** and alkylphenols
 112-90-3D, reaction products with dibutylphenol and
paraformaldehyde 124-22-1D, reaction products with
paraformaldehyde and alkylphenols 124-40-3D,
 reaction products with **formaldehyde** and alkylphenols
 4067-16-7D, reaction products with **paraformaldehyde** and
 alkylphenols 7803-57-8D, reaction products with
paraformaldehyde and alkylphenols 26746-38-3D, reaction
 products with amines and **aldehydes** 30525-89-4D, reaction
 products with amines and alkylphenols
 (lubricating oil dispersants)
- L60 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2002 ACS
 1977:109038 Document No. 86:109038 Sulfur-containing **Mannich**
 condensation products and liquid fuels and propellants and
 lubricants containing these compounds. Davis, Kirk E. (Lubrizol
 Corp., USA). Ger. Offen. DE 2551256 19760812, 28 pp. (German).
 CODEN: GWXXBX. APPLICATION: DE 1975-2551256 19751114.
- AB Additives for improving thermal stability and oxidn. characteristics
 of engine lubricants, gasolines, and transmission fluids are prepd.
 by reacting amorphous or cryst. S with **Mannich**
 condensation products, e.g. from the reaction of a (
polyisobutenyl)phenol (I), pentaethylenehexamine
 (II) [4067-16-7], and **paraformaldehyde** (III) [30525-89-4].
 Thus, a I (no. av. mol. wt. 885) prepd. from PhOH and
polyisobutene was reacted with II and III, mixed with oil
 and filtered to yield a 40% oil soln. of a **Mannich**
 condensation product contg. 1.87% N. This product was then reacted
 with amorphous S to yield a 40% oil soln. of the additive contg. N
 1.79 and S 1.43%. The additive soln. was used in gasoline contg.
 Et4Pb. A similarly prepd. 40% oil soln. of an additive contg. N
 1.42 and S 0.89% was used in SAE 10W-40 motor oil.
- IT 108-95-2D, alkyl and **polyalkenyl** derivs.,
Mannich condensation products with amines and
formaldehyde, sulfurized 124-40-3D,
Mannich condensation products with alkylphenols and
formaldehyde, sulfurized
 (antioxidants, for gasoline and lubricating oils)
- RN 108-95-2 HCAPLUS
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C08G014-06
 CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 50
 ST **Mannich** condensation product sulfurized; lubricant
 antioxidant **Mannich**; gasoline antioxidant **Mannich**
 IT Gasoline additives
 Lubricating oil additives
 (antioxidants, **Mannich** condensation products,
 sulfurized)
 IT Hydraulic fluids
 (transmission, **Mannich** condensation products,
 sulfurized, additives in)
 IT 106-50-3D, **Mannich** condensation products with
formaldehyde and alkylphenols, sulfurized 108-95-2D
 , alkyl and **polyalkenyl** derivs., **Mannich**
 condensation products with amines and **formaldehyde**,
 sulfurized 110-91-8D, **Mannich** condensation products with
 propylene tetramer phenol and **formaldehyde**, sulfurized
 112-90-3D, **Mannich** condensation products with
 di(tert-butyl)phenol and **formaldehyde**, sulfurized
 124-40-3D, **Mannich** condensation products with
 alkylphenols and **formaldehyde**, sulfurized 4067-16-7D,
Mannich condensation products with polyisobutenylphenol and
formaldehyde, sulfurized 7803-57-8D, **Mannich**
 condensation products with alkylphenols and **formaldehyde**,
 sulfurized 26746-38-3D, **Mannich** condensation products
 with oleylamine and **formaldehyde**, sulfurized
 26997-02-4D, **Mannich** condensation products with
 dodecylaniline and **formaldehyde**, sulfurized 28675-17-4D,
Mannich condensation products with heptylphenol and
formaldehyde, sulfurized 28805-86-9D, **Mannich**
 condensation products with amines and **formaldehyde**,
 sulfurized 30525-89-4D, **Mannich** condensation products
 with amines and phenols, sulfurized 57427-55-1D, **Mannich**
 condensation products with amines and **formaldehyde**,
 sulfurized
 (antioxidants, for gasoline and lubricating oils)

L60 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2002 ACS
 1975:596127 Document No. 83:196127 Liquid hydrocarbon fuels containing
Mannich bases or derivatives thereof. Dix, Robert W.
 (Lubrizol Corp., USA). U.S. US 3877889 19750415, 4 pp. (English).
 CODEN: USXXAM. APPLICATION: US 1973-413488 19731107.
 AB An additive providing fuels with dispersant, antiicing, and
 rust-inhibiting properties was prepd. by the **Mannich**

reaction between an alkylphenol, (HCHO)_x [30525-89-4] and diethanolamine [111-42-2]. Adducts of the product with epoxides are also useful as fuel additives.

IT 108-18-9
 (Mannich reaction with (tetrapropylene)phenol)
 RN 108-18-9 HCAPLUS
 CN 2-Propanamine, N-(1-methylethyl)- (9CI) (CA INDEX NAME)

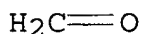
i-Pr-NH-Pr-i

IC C10L
 NCL 044073000
 CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
 ST Mannich product fuel additive; gasoline additive
 Mannich base
 IT Gasoline additives
 (antiicing and antiirust dispersants, Mannich bases of phenols)
 IT Oxirane, methyl-, reaction products with
 (tetrapropylene) [[bis(hydroxyethyl)amino]methyl]phenol
 Phenol, polyisobutenyl derivs., reaction
 products with diethanolamine and paraformaldehyde
 Phenol, [[bis(2-hydroxyethyl)amino]methyl] (tetrapropylene)-,
 propoxylated
 Phenol, [[bis(2-hydroxyethyl)amino]methyl]-,
 polyisobutenyl derivs.
 (gasoline additives)
 IT 108-18-9 111-41-1
 (Mannich reaction with (tetrapropylene)phenol)
 IT 57427-55-1
 (Mannich reaction with alkanolamines)
 IT 111-42-2, reactions
 (Mannich reaction with alkylphenols)
 IT 30525-89-4
 (Mannich reaction with alkylphenols and alkanolamines)
 IT 26997-02-4
 (Mannich reaction with diethanolamine)

L60 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2002 ACS
 1974:570490 Document No. 81:170490 High-molecular-weight hybrid electrolytes. Fujiwara, Hiroshi; Sekiya, Masaaki; Suzuki, Hiroshi (Maruzen Oil Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 49053283 19740523 Showa, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1972-95296 19720922.
 AB Copolymers of p-hydroxystyrene(I) and acrylic acid, methacrylic acid, or maleic anhydride (II) were Mannich-reacted with secondary amines and reactive HCHO derivs. and optionally quaternized with halogenated hydrocarbons or dialkyl sulfates to give the title compds. For example, 5.6 g hydrolysis product of a mixt. (20 mole % I) of poly(p-hydroxystyrene) [24979-70-2] and I-II

copolymer [41222-39-3] was dissolved at room temp. in EtOH, mixed at 0.deg. with 19 ml diethylamine [109-89-7] and 30 ml of 37 % aq. HCHO [50-00-0], reacted for 2 hr, and the filtrate sepd. from the solvent to give 3.5 g H2O-sol. product.

IT 50-00-0, reactions
(with hydroxystyrene copolymer and diethylamine, high-mol. wt. electrolytes from)
RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 109-89-7, reactions
(with hydroxystyrene copolymers and formaldehyde, high-mol. wt. electrolytes from)
RN 109-89-7 HCAPLUS
CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



NCL 26(3)F115.2
CC 36-3 (Plastics Manufacture and Processing)
ST hydroxystyrene electrolyte; Mannich reaction
hydroxystyrene copolymer; maleic anhydride hydroxystyrene copolymer
IT Mannich reaction
(of hydroxystyrene copolymers, high-mol. wt. electrolytes from)
IT 2,5-Furandione, polymer with 4-ethenylphenol, hydrolysis products
Phenol, 4-ethenyl-, homopolymer, hydrolysis products
Phenol, 4-ethenyl-, polymer with 2,5-furandione, hydrolysis products
(Mannich reaction with, high mol. wt. electrolytes from)
IT 50-00-0, reactions
(with hydroxystyrene copolymer and diethylamine, high-mol. wt. electrolytes from)
IT 109-89-7, reactions
(with hydroxystyrene copolymers and formaldehyde, high-mol. wt. electrolytes from)

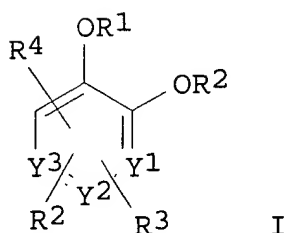
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L61 ANSWER 1 OF 26 HCAPLUS COPYRIGHT 2002 ACS
2002:695930 Document No. 137:232440 Preparation of benzene-1,2-diol
Mannich bases, their polymers and their use in selective metal ion extraction. Solomon, David H.; Caulfield, Marcus J.; Russo, Tiziana; Shaw, Ray; McAllister, Duncan J. (Technological

↓↓↓ may or may not be that useable from here on

Resources Pty. Limited, Australia). PCT Int. Appl. WO 2002070456 A1 20020912, 64 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-AU243 20020301. PRIORITY: AU 2001-3464 20010301; AU 2001-5484 20010605.

GI



AB **Mannich** bases I [Y1-Y3 = CH, N; R1, R2 = H, (un)substituted alkyl, alkenyl, alkynyl, aryl, protecting group; R3 = H, (un)substituted alkyl, alkenyl, alkynyl, aryl, carbocyclic, heterocyclic; R4 = H, OH, etherified OH; X = aminoalkylene] were prepd. and complexed with Si or Al for selective extn. from aq. into org. solvents, such as in a Bayer process. Polymers of I are also claimed. Thus, guaiacol was treated with CH₂O and Bu₂NH to give 2,3-HO(MeO)C₆H₃CH₂NBu₂ which was demethylated and complexed with Si or Al. The Si complex was partitioned between water and MeCOEt to give 64% recovery of Si from the MeCOEt phase. Similarly partitioning of the Al complex between water and AcOEt gave 90% recovery from the AcOEt phase.

IT 143-16-8, Dihexylamine 1120-48-5, Dioctylamine 39190-86-8, N-Propyl-2-pentanamine (prepn. of benzene-1,2-diol **Mannich** bases, their polymers and their use in selective metal ion extn.)

RN 143-16-8 HCAPLUS

CN 1-Hexanamine, N-hexyl- (9CI) (CA INDEX NAME)

Me- (CH₂)₅-NH- (CH₂)₅-Me

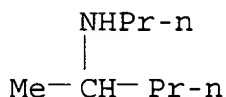
RN 1120-48-5 HCAPLUS

CN 1-Octanamine, N-octyl- (9CI) (CA INDEX NAME)

Me- (CH₂)₇-NH- (CH₂)₇-Me

RN 39190-86-8 HCAPLUS

CN 2-Pentanamine, N-propyl- (9CI) (CA INDEX NAME)



IC ICM C07C215-50

ICS C07F005-06; C07F007-02; C02F001-60; C02F001-58; C02F001-42

CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 56, 78

ST **benzenediol Mannich** base prepn metal ion
complexation; extn water aluminum silicon
aminomethylenebenzenediol

IT Bayer process
Extractants
Partition

(prepn. of benzene-1,2-diol **Mannich** bases, their
polymers and their use in selective metal ion extn.)

IT **Mannich** bases

(prepn. of benzene-1,2-diol **Mannich** bases, their
polymers and their use in selective metal ion extn.)

IT 120-80-9D, **Catechol**, complexes

(prepn. of benzene-1,2-diol **Mannich** bases, their
polymers and their use in selective metal ion extn.)

IT 405162-08-5P 405162-09-6P 405162-10-9P 405162-11-0P

457890-69-6P 457890-71-0P 457890-73-2P 458569-82-9P

458569-84-1P 458569-86-3P 458569-88-5P 458569-90-9P

(prepn. of benzene-1,2-diol **Mannich** bases, their
polymers and their use in selective metal ion extn.)

IT 90-05-1, Guaiacol 110-70-3, N,N'-Dimethylethylenediamine
110-85-0, Piperazine, reactions 111-33-1, N,N'-Dimethyl-1,3-
propanediamine 111-74-0, N,N'-Diethylethylenediamine 120-80-9,
1,2-**Benzenediol**, reactions 143-16-8,
Dihexylamine 1120-48-5, Dioctylamine 39190-86-8,
N-Propyl-2-pentanamine

(prepn. of benzene-1,2-diol **Mannich** bases, their
polymers and their use in selective metal ion extn.)

IT 24773-90-8P 40792-28-7P, 2-Diethylaminomethyl-6-methoxyphenol
43060-63-5P, 2-Dimethylaminomethyl-6-methoxyphenol 94483-71-3P,
3-Dimethylaminomethyl-1,2-**benzenediol** 124672-67-9P,
2-Dibutylaminomethyl-6-methoxyphenol 322648-91-9P 322648-92-0P
322648-93-1P 322648-94-2P 322648-96-4P 322648-98-6P,
3-Diethylaminomethyl-1,2-**benz nediol** 322648-99-7P,
3-Dipropylaminomethyl-1,2-**benzenediol** 322649-00-3P,
3-Dibutylaminomethyl-1,2-**benzenediol** 322649-01-4P,

2-Dipropylaminomethyl-6-methoxyphenol

(prepn. of benzene-1,2-diol **Mannich** bases, their polymers and their use in selective metal ion extn.)

IT 7429-90-5DP, Aluminum, complexes with **catechol Mannich** bases 7440-21-3DP, Silicon, complexes with **catechol Mannich** bases 7440-32-6DP, Titanium, complexes with **catechol Mannich** bases 7440-42-8DP, Boron, complexes with **catechol Mannich** bases 322648-95-3P 322648-97-5P 457890-66-3P 457890-68-5P

(prepn. of benzene-1,2-diol **Mannich** bases, their polymers and their use in selective metal ion extn.)

L61 ANSWER 2 OF 26 HCAPLUS COPYRIGHT 2002 ACS

2001:895570 Document No. 136:21825 Organic compounds for inhibition of pyrophoric iron sulfide ignition, especially in petroleum refining, transportation, and storage. Roling, Paul V.; Parker, Wiley L.; Golaszewski, Alan E.; Williams, Timothy S.; Groce, Bernard C.; Sintim, Quincy K. A. (BetzDearborn Inc., USA). U.S. US 6328943 B1 20011211, 8 pp. (English). CODEN: USXXAM. APPLICATION: US 1998-112882 19980709.

AB The pyrophoric activity of iron sulfides (e.g., prepd. from petroleum refining by action of H₂S in petroleum feedstocks and petroleum products with iron oxides during transportation, processing, and storage in reducing atmospheres or in the absence of air or oxygen) is inhibited by contacting these iron sulfides or precursors in the liq. phase in the presence of air with a substance that inhibits the oxidn. activity of the iron sulfides. The iron sulfides in question can be derived by reaction with goethite [FeO(OH)], hematite (Fe₂O₃), and magnetite (Fe₃O₄), to form such in-situ sulfides as mackinawite (FeS_x), greigite (Fe₃S₄), and pyrite (FeS₂). Suitable inhibitors comprise alkyl amines, aryl amines, imines; oxygen-contg. compds. such as alcs., **aldehydes**, esters, acids and ketones; mixed nitrogen-contg. and oxygen-contg. compds. such as alkanolamines, non-polymeric amides, hydroxylamines, **Mannich** products, polyisobutylenesuccinimides, oximes; sulfur-contg. compds. and phosphorus-contg. compds. The compns. and method serve to inhibit the exothermic oxidn. of pyrophoric iron sulfides upon exposure of the compds. to air.

IT 50-00-0D, **Formaldehyde**, **Mannich** reaction products with p-nonylphenol and 1,2-ethanediamine 109-89-7, Diethylamine, uses (inhibitor; org. compds. for inhibition of pyrophoric iron sulfide ignition, esp. in petroleum refining, transportation, and storage)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

H₂C=O

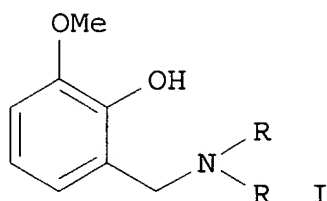
RN 109-89-7 HCAPLUS
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM C01B017-16
 NCL 423265000
 CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 59
 IT Alcohols, uses
Aldehydes, uses
 Amides, uses
 Amines, uses
 Carboxylic acids, uses
 Esters, uses
 Imines
 Ketones, uses
Mannich bases
 (inhibitors; org. compds. for inhibition of pyrophoric iron
 sulfide ignition, esp. in petroleum refining, transportation, and
 storage)
 IT **50-00-0D, Formaldehyde, Mannich** reaction
 products with p-nonylphenol and 1,2-ethanediamine 62-53-3,
 Aniline, uses 64-17-5, Ethanol, uses 67-64-1, Acetone, uses
 68-12-2, Dimethylformamide, uses 75-05-8, Acetonitrile, uses
 75-07-0, **Acetaldehyde**, uses 75-50-3, Trimethylamine,
 uses 78-81-9, Isobutylamine 79-09-4, Propanoic acid, uses
 91-22-5, Quinoline, uses 98-95-3, Nitrobenzene, uses 102-85-2,
 Tributyl phosphite 104-40-5D, p-Nonylphenol, **Mannich**
 reaction products with **formaldehyde** and ethylenediamine
 107-10-8, n-Propylamine, uses 107-15-3D, 1,2-Ethanediamine,
Mannich reaction products with p-nonylphenol and
formaldehyde 107-21-1, Ethylene glycol, uses
 109-89-7, Diethylamine, uses 109-99-9, Tetrahydrofuran,
 uses 110-18-9 110-71-4, Monoglyme 110-82-7, Cyclohexane, uses
 112-24-3, Triethylenetetramine 112-27-6, Triethylene glycol
 122-52-1, Triethyl phosphite 123-54-6, 2,4-Pentanedione, uses
 123-56-8D, Succinimide, polyisobutenyl derivs. 123-86-4, Butyl
 acetate 124-13-0, Octanal 126-33-0, Sulfolane 127-06-0,
 Acetone oxime 141-97-9, Ethyl acetoacetate 504-75-6D,
 1H-Imidazole, 4,5-dihydro-, 2-long-chain alkyl derivs. 540-63-6,
 1,2-Ethanedithiol 3710-84-7, N,N-Diethylhydroxylamine
 25899-50-7, cis-2-Pentenitrile 27213-78-1, tert-
Butylcatechol 41383-85-1, 1,2-Benzenedithiol, 3-methyl-
 121172-43-8, 1,4-Benzenediamine, N,N,N',N'-tetrakis(1-methylpropyl)-
 (inhibitor; org. compds. for inhibition of pyrophoric iron
 sulfide ignition, esp. in petroleum refining, transportation, and
 storage)

2000:845394 Document No. 134:147358 Controlled synthesis of novel dibenzene-1,2-diol **mannich** bases. Caulfield, Marcus J.; Russo, Tiziana; Solomon, David H. (Polymer Science Group, Department of Chemical Engineering, The University of Melbourne, Vic., 3010, Australia). Australian Journal of Chemistry, 53(7), 545-549 (English) 2000. CODEN: AJCHAS. ISSN: 0004-9425. OTHER SOURCES: CASREACT 134:147358. Publisher: CSIRO Publishing.

GI



AB The synthesis of novel dibenzene-1,2-diol **Mannich** bases, e.g. I (R = Me, Et), was achieved in good yields by the condensation of 2-methoxyphenol, **formaldehyde** and secondary diamines. The newly developed synthetic method utilizes 2-methoxyphenol instead of benzene-1,2-diol providing a useful tool for greater control over reaction products.

IT 109-89-7, Diethylamine, reactions 111-92-2, Dibutylamine 124-40-3, Dimethylamine, reactions 142-84-7, Dipropylamine (prepn. of **dibenzenediol mannich** bases by condensation of methoxyphenol with **formaldehyde** and secondary diamines)

RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 142-84-7 HCAPLUS
 CN 1-Propanamine, N-propyl- (9CI) (CA INDEX NAME)

n-Pr-NH-Pr-n

CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 ST **dibenzenediol mannich** base prepn; methoxyphenol

formaldehyde amine condensation

IT Condensation reaction

(prepn. of **dibenzenediol mannich** bases by
 condensation of methoxyphenol with **formaldehyde** and
 secondary diamines)

IT **Aldehydes**, reactions

Hydroquinones

(prepn. of **dibenzenediol mannich** bases by
 condensation of methoxyphenol with **formaldehyde** and
 secondary diamines)

IT Amines, preparation

(prepn. of **dibenzenediol mannich** bases by
 condensation of methoxyphenol with **formaldehyde** and
 secondary diamines)

IT 90-05-1, 2-Methoxyphenol 109-89-7, Diethylamine, reactions
 110-70-3 110-85-0, Piperazine, reactions 111-33-1 111-74-0
 111-92-2, Dibutylamine 120-80-9, 1,2-Benzenediol
 , reactions 124-40-3, Dimethylamine, reactions
 142-84-7, Dipropylamine

(prepn. of **dibenzenediol mannich** bases by
 condensation of methoxyphenol with **formaldehyde** and
 secondary diamines)

IT 24773-90-8P 40792-28-7P 43060-63-5P 124672-67-9P
 322648-91-9P 322648-92-0P 322648-93-1P 322649-01-4P

(prepn. of **dibenzenediol mannich** bases by
 condensation of methoxyphenol with **formaldehyde** and
 secondary diamines)

IT 94483-71-3P 322648-94-2P 322648-95-3P 322648-96-4P
 322648-97-5P 322648-98-6P 322648-99-7P 322649-00-3P

(prepn. of **dibenzenediol mannich** bases by
 condensation of methoxyphenol with **formaldehyde** and
 secondary diamines)

L61 ANSWER 4 OF 26 HCAPLUS COPYRIGHT 2002 ACS

1995:318175 Document No. 122:213688 A new entry to the synthesis of
 1,2-benzenediol congeners. Ozaki, Yutaka; Oshio, Ikumi;
 Ohsuga, Yasue; Kaburagi, Shouichi; Sung, Zhung-Zhu; Kim, Sang-Won
 (Fac. Pharm. Sci., Josai Univ., Saitama, 350-02, Japan). Chemical &
 Pharmaceutical Bulletin, 39(5), 1132-6 (English) 1991. CODEN:
 CPBTAL. ISSN: 0009-2363. OTHER SOURCES: CASREACT 122:213688.
 Publisher: Pharmaceutical Society of Japan.

AB 1,2-Benzenediols were synthesized via 1,1-bis(ethylthio)3-
 cyclohexen-2-one derivs., which were prepd. by condensation of

1,1-bis(ethylthio)-2-propanone with **Mannich** bases.
Regioselective prepn. of their monoethers was also achieved.

IT 506-59-2, Dimethylamine hydrochloride
(prepn. of 1,2-**benzenediol** congeners)
RN 506-59-2 HCAPLUS
CN Methanamine, N-methyl-, hydrochloride (9CI) (CA INDEX NAME)

$\text{H}_3\text{C}-\text{NH}-\text{CH}_3$

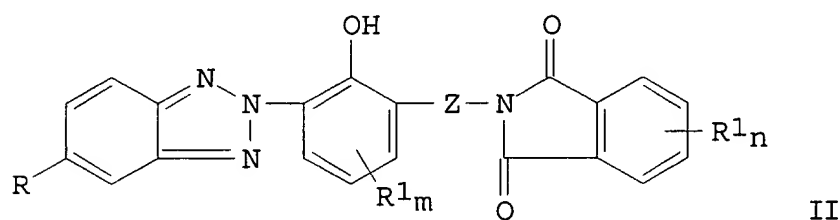
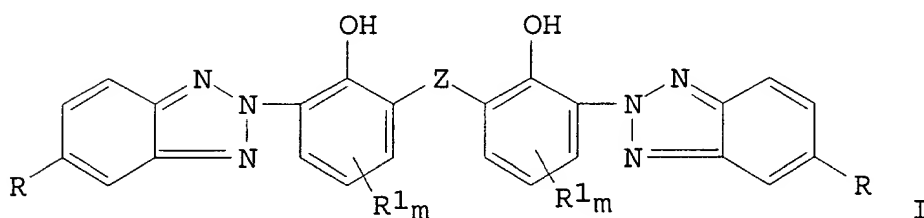
HCl

CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
ST annelation **benzenediol** congener prepn; annulation
benzenediol congener prepn; condensation **benzenediol**
congener prepn; **Mannich** base **benzenediol**
congener prepn
IT Cyclocondensation reaction
([3C + 3C]; prepn. of 1,2-**benzenediol** congeners)
IT Condensation reaction
Regiochemistry
(prepn. of 1,2-**benzenediol** congeners)
IT **Mannich** bases
(prepn. of 1,2-**benzenediol** congeners)
IT Phenols, preparation
(prepn. of 1,2-**benzenediol** congeners)
IT Ethers, preparation
(phenolic, prepn. of 1,2-**benzenediol** congeners)
IT Ketones, preparation
(unsatd., prepn. of 1,2-**benzenediol** congeners)
IT 506-59-2, Dimethylamine hydrochloride 3506-36-3
6947-99-5 7353-59-5 7616-83-3, Mercuric perchlorate 15409-60-6
15409-61-7 22877-01-6 30525-89-4, **Paraformaldehyde**
98429-19-7
(prepn. of 1,2-**benzenediol** congeners)
IT 125101-60-2P 125101-61-3P 125101-62-4P 125101-63-5P
125101-64-6P 125101-66-8P 125101-67-9P 125101-68-0P
125101-69-1P 125101-70-4P 125101-71-5P 125101-72-6P
125101-73-7P 125101-74-8P 125101-75-9P 125101-76-0P
125101-79-3P 125101-80-6P 125101-83-9P 125101-84-0P
125101-85-1P 161835-31-0P 161835-39-8P
(prepn. of 1,2-**benzenediol** congeners)
IT 92-05-7P, [1,1'-Biphenyl]-3,4-diol 942-65-4P 945-60-8P
961-77-3P 3355-05-3P 3579-88-2P 3598-20-7P 37055-79-1P
37055-80-4P 77065-84-0P 83802-75-9P 93877-90-8P
102036-30-6P, [1,1'-Biphenyl]-2,3',4,4'-tetrol 125101-65-7P
125101-77-1P 125101-78-2P 125101-81-7P 125101-82-8P
125130-40-7P 161835-32-1P 161835-33-2P 161835-34-3P

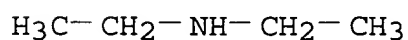
161835-35-4P 161835-36-5P 161835-37-6P 161835-38-7P
 161835-40-1P 161835-41-2P
 (prepn. of 1,2-**benzenediol** congeners)

L61 ANSWER 5 OF 26 HCAPLUS COPYRIGHT 2002 ACS
 1994:422553 Document No. 121:22553 Positive-working photoresist
 compositions providing pattern with good dimensional stability.
 Kawabe, Yasumasa; Uenishi, Kazuya; Kokubo, Tadayoshi (Fuji Photo
 Film Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 05341509 A2 19931224
 Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
 1992-144395 19920604.

GI



AB The title compns. comprise an alkali-sol. resin, a
 1,2-naphthoquinonediazide compd., and 0.1-10 wt.% of the total
 solids of .gtoreq.1 light-absorbing agent selected from I and II (R
 = H, halo, alkyl, aralkyl, alkoxy, acyl, aryl; Z = bond, alkylene,
 O, S, SO2, CO; R1 = H, alkyl, aralkyl; m = 1-3; n = 1-4). The
 compns. provide resist patterns with good dimensional stability.
 IT 109-89-7, Diethylamine, reactions
 (Mannich reaction of, with methylbenzotriazolylphenol)
 RN 109-89-7 HCAPLUS
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM G03F007-022
 ICS H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and

Other Reprographic Processes)

Section cross-reference(s): 76

- IT 2440-22-4 3147-75-9 15989-00-1
(**Mannich** reaction of, with diethylamine)
- IT 109-89-7, Diethylamine, reactions
(**Mannich** reaction of, with methylbenzotriazolylphenol)
- IT 87-66-1DP, 1,2,3-**Trihydroxybenzene**, reaction products with naphthoquinonediazidesulonic chloride 97-29-0DP, reaction products with naphthoquinonediazidesulonic chloride 108-73-6DP, Phloroglucinol, reaction products with naphthoquinonediazidesulonic chloride 121-79-9DP, Propyl 3,4,5-trihydroxybenzoate, reaction products with naphthoquinonediazidesulonic chloride 25053-98-9P, m-**Cresol**-3,5-dimethylphenol-**formalin** copolymer 27029-76-1P, m-**Cresol**-p-**cresol**-**formalin** copolymer 31127-54-5DP, 2,3,4,4'-Tetrahydroxybenzophenone, reaction products with naphthoquinonediazidesulonic chloride 38638-43-6DP, 1,2-Naphthoquinonediazide-5-sulfonyl chloride, reaction products with polyhydric phenols (prepn. of, photoresist contg.)
- IT 106-44-5, p-**Cresol**, reactions
(reaction of, with **caprylaldehyde**)
- IT 124-13-0, **Caprylaldehyde**
(reaction of, with **cresol**)

L61 ANSWER 6 OF 26 HCAPLUS COPYRIGHT 2002 ACS

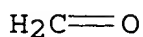
1994:111447 Document No. 120:111447 Gasoline composition. Graiff, Leonard B. (Shell Canada Ltd., Can.). Can. Pat. Appl. CA 2089833 AA 19930821, 13 pp. (English). CODEN: CPXXEB. APPLICATION: CA 1993-2089833 19930218. PRIORITY: US 1992-838180 19920220.

AB A gasoline compn. comprises a major amt. of gasoline and a minor amt. of a mixt. of (a) 75-450 ppm by wt. of a condensation product of a high mol. wt. sulfur-free alkyl-substituted **hydroxyarom** . compd. where the alkyl group has a no. av. mol. wt. of 600-3000, an amine with .gtoreq.1 active H atom, and **aldehyde**; and (b) 75-175 ppm by wt. of an oil sol. poly(oxyalkylene) alc., glycol or polyol or mono or di ether. The wt. ratio of a to b is >0.43. The gasoline additive compn. prevents engine deposits.

IT 50-00-0D, **Formaldehyde**, alkyl-substituted **hydroxyarom**. and amine **Mannich** reaction products with 124-40-3D, Dimethylamine, alkyl-substituted **hydroxyarom**. and **aldehyde Mannich** reaction products with (deposit inhibitor gasoline additives contg. polyoxyalkylenes and)

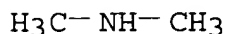
RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC ICM C10L001-18
ICS C10L001-22

CC 51-7 (Fossil Fuels, Derivatives, and Related Products)

IT Polyoxyalkylenes, uses
(deposit inhibitor gasoline additives contg. **Mannich** reaction products and)

IT Alcohols, compounds
(C12-15, propoxylated, deposit inhibitor gasoline additives contg. **Mannich** reaction products and)

IT Gasoline additives
(deposit inhibitors, **Mannich** reaction products and polyoxyalkylenes)

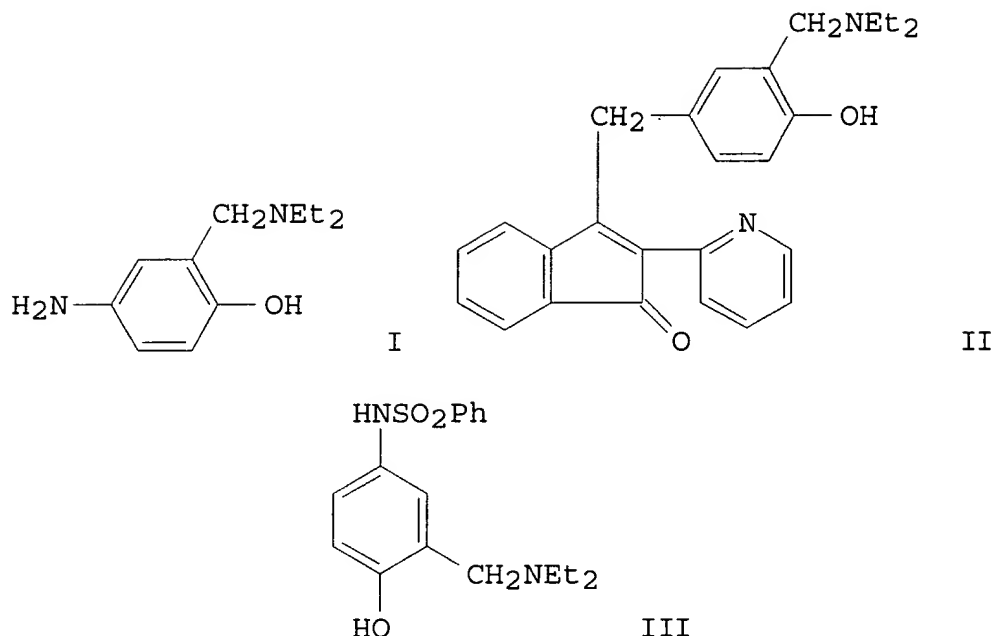
IT Polyoxyalkylenes, compounds
(ethers, deposit inhibitor gasoline additives contg. **Mannich** reaction products and)

IT Alcohols, compounds
(ethoxylated, deposit inhibitor gasoline additives contg. **Mannich** reaction products and)

IT 50-00-0D, **Formaldehyde**, alkyl-substituted **hydroxyarom.** and amine **Mannich** reaction products with 109-55-7D, Dimethylaminopropylamine, alkyl-substituted **hydroxyarom.** and **aldehyde Mannich** reaction products with 109-55-7D, N,N-Dimethyl-1,3-diaminopropane, polyisobutenyl derivs. 111-40-0D, Diethylenetriamine, alkyl-substituted **hydroxyarom.** and **aldehyde Mannich** reaction products with 112-24-3D, alkyl-substituted **hydroxyarom.** and **aldehyde Mannich** reaction products with 112-57-2D, Tetraethylenepentamine, alkyl-substituted **hydroxyarom.** and **aldehyde Mannich** reaction products with 124-40-3D, Dimethylamine, alkyl-substituted **hydroxyarom.** and **aldehyde Mannich** reaction products with 30525-89-4D, **Paraformaldehyde**, alkyl-substituted **hydroxyarom.** and amine **Mannich** reaction products with
(deposit inhibitor gasoline additives contg. polyoxyalkylenes and)

L61 ANSWER 7 OF 26 HCAPLUS COPYRIGHT 2002 ACS
1993:80770 Document No. 118:80770 Synthesis and mass spectrometry of some a-dialkylaminoalkylphenols structurally related to certain antiparasitic agents. El-Mouafi, Hamdi M. R. (Fac. Pharm., Cairo Univ., Egypt). Egyptian Journal of Pharmaceutical Sciences, 32(3-4), 927-35 (English) 1991. CODEN: EJPSBZ. ISSN: 0301-5068.
OTHER SOURCES: CASREACT 118:80770.

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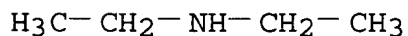
AB Condensation of **aminohydroxybenzenemethanamine** derivs. (**Mannich** bases), e.g. I with 3-chloro-2-(2-pyridyl)-1-indenone gave the [[[di(alkylamino)methyl]hydroxyphenyl]amino] (2-pyridyl)indenone II. **Mannich** reaction of N-(4-hydroxyphenyl)benzenesulfonamide with **formaldehyde** and diethylamine gave the [[di(alkylamino)methyl]hydroxyphenyl]benzenesulfonamide III. The mass spectrum of III was discussed. The antiparasitic activity of these compds. was not reported.

IT 109-89-7, Diethylamine, reactions 111-92-2, Dibutylamine

(**Mannich** reaction of, with N-(hydroxyphenyl)benzenesulfonamide)

RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS

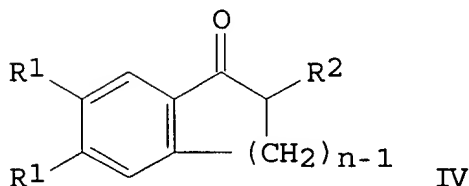
CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



- CC 27-16 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 1, 25, 28
- ST alkylaminomethylhydroxyphenyl benzenesulfonamide; pyridyl
alkylaminomethylhydroxyphenylamino indenone; mass spectrum
alkylaminomethylhydroxyphenyl benzenesulfonamide;
alkylaminoalkylphenols parasiticide mass spectrum; condensation
Mannich base chloropyridyl indenone
- IT 103-49-1, Dibenzylamine **109-89-7**, Diethylamine, reactions
110-91-8, Morpholine, reactions **111-92-2**, Dibutylamine
(**Mannich** reaction of, with N-
(hydroxyphenyl)benzenesulfonamide)
- IT 105481-66-1 145438-28-4
(condensation reaction of, with **aminohydroxybenzenemethanami**
ne deriv. (**Mannich** base))
- IT 1146-43-6P, N-(4-Hydroxyphenyl)-4-methylbenzenesulfonamide
5471-90-9P, N-(4-Hydroxyphenyl)benzenesulfonamide
(prepn. and **Mannich** reaction of)
- IT 145438-34-2P 145438-35-3P 145438-36-4P
(prepn. of, by **Mannich** reaction of N-
(hydroxyphenyl)benzenesulfonamide with secondary amine)
- IT 145438-37-5P 145438-38-6P 145438-39-7P 145438-40-0P
(prepn. of, by **Mannich** reaction of N-
(hydroxyphenyl)methylbenzenesulfonamide with secondary amine)
- IT 145438-29-5P 145438-30-8P 145438-31-9P 145438-32-0P
145438-33-1P
(prepn. of, by condensation reaction of
aminohydroxybenzenemethanamine deriv. (**Mannich**
base) with aryl(chloro)indenone)

L61 ANSWER 8 OF 26 HCAPLUS COPYRIGHT 2002 ACS
1991:655697 Document No. 115:255697 Synthesis and antiinflammatory
activity of 1,2-[2-[(dimethylamino)methyl]-1-
oxopolymethylene]benzenes and their 4,5-diethoxy derivatives.
Dauksas, V.; Gaidelis, P.; Labanauskas, L.; Gumbaragite, L.;
Gasparaviciene, G. (Vil'nyuss. Gos. Univ., Vilnius, USSR).
Khimiko-Farmatsevticheskii Zhurnal, 25(8), 32-4 (Russian) 1991.
CODEN: KHFZAN. ISSN: 0023-1134. OTHER SOURCES: CASREACT
115:255697.

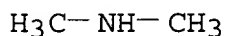
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AB Acylating 3,4-(EtO)₂C₆H₃R (I; R = H) with succinic anhydride in

CH₂Cl₂ contg. AlCl₃ gave 63% I (R = COCH₂CH₂CO₂H), which was reduced with Zn amalgam in concd. HCl to give 89% I [R = (CH₂)₃CO₂H] (II). I (R = CHO) condensed with malonic acid in 80:20 pyridine-piperidine at 110.degree. to give 88% I (R = CH:CHCO₂H), which was reduced with 90 atm H₂ over Raney Ni to give 95% I [R = (CH₂)₂CO₂H] (III). Dehydrating II and III with P₂O₅ in 85% H₃PO₄ at 90.degree. gave 70-77% bicyclic ketones IV (R₁ = EtO; R₂ = H; n = 2, 3), which reacted with Me₂NH.HCl and paraform in refluxing EtOH to give 65-70% IV (same R₁, n; R₂ = CH₂NMe₂.HCl). Analogous **Mannich** reaction of IV (R₁ = R₂ = H; n = 4, 5) gave 53-67% IV (same R₁, n; R₂ = CH₂NMe₂.HCl). IV (n = 2-5; R₂ = CH₂NMe₂.HCl) had significant antiinflammatory activity.

IT 506-59-2, Dimethylamine hydrochloride
 (Mannich reaction of (oxopolymethylene)benzenes with paraform and)
 RN 506-59-2 HCAPLUS
 CN Methanamine, N-methyl-, hydrochloride (9CI) (CA INDEX NAME)

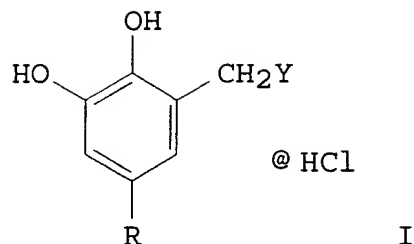


HCl

CC 25-4 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 Section cross-reference(s): 1
 IT 506-59-2, Dimethylamine hydrochloride
 (Mannich reaction of (oxopolymethylene)benzenes with paraform and)
 IT 826-73-3 829-14-1
 (Mannich reaction of, with paraform and dimethylamine)
 IT 108-30-5, Succinic anhydride, reactions
 (acylation by, of **pyrocatechol** di-Et ether)
 IT 141-82-2, Malonic acid, reactions
 (condensation reaction of, with **diethoxybenzaldehyde**)
 IT 119034-81-0P 137013-02-6P
 (prepn. and **Mannich** reaction of, with paraform and dimethylamine)

L61 ANSWER 9 OF 26 HCAPLUS COPYRIGHT 2002 ACS
 1991:582728 Document No. 115:182728 Synthesis of several **catechol**-methylamine derivatives. Jia, Guiquan; Xue, Fen; Ye, Ying; Shao, Yide (Dep. Org. Chem., Shanghai Med. Univ., Shanghai, Peop. Rep. China). Shanghai Yike Daxue Xuebao, 18(1), 67-71 (Chinese) 1991. CODEN: SYDXEE. ISSN: 0257-8131.

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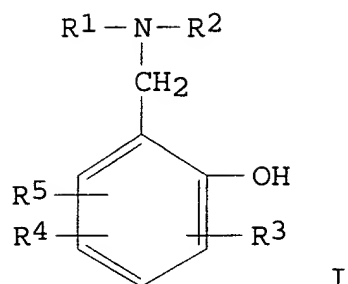


- AB The title compds. (I; R = H, Ac; Y = dialkylamino, dicyclohexylamino, heterocyclyl), useful as blood platelet aggregation inhibitors (no data), are prepd. by **Mannich** reaction. **Catechol** was added to a stirred soln. of **paraformaldehyde** and Et₂NH in EtOH, the mixt. was stirred, concd. in vacuo, H₂O and HCl were added to the residue, extd. with Et₂O, and treated with HCl (g) to give 25% I (R = H, Y = Et₂N). Similarly prepd. were 10 addnl. I.
- IT 109-89-7, reactions
(**Mannich** reaction of, with **paraformaldehyde** and **catechol**)
- RN 109-89-7 HCAPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



- CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 1
- ST **catecholmethylamine** prepn platelet aggregation inhibitor
- IT Blood platelet aggregation inhibitors
(**catechol** methylamine derivs.)
- IT 30525-89-4, **Paraformaldehyde**
(**Mannich** reaction of, with **catechol** and amines)
- IT 109-89-7, reactions
(**Mannich** reaction of, with **paraformaldehyde** and **catechol**)
- IT 120-80-9, **Catechol**, reactions 1197-09-7
(**Mannich** reaction of, with **paraformaldehyde** and diethylamine)
- L61 ANSWER 10 OF 26 HCAPLUS COPYRIGHT 2002 ACS
1990:611559 Document No. 113:211559 A process for the synthesis of ortho-methylated **hydroxyaromatic** compounds. Pan, Yuh Guo; Hochman, Lana L. (Bristol-Myers Squibb Co., USA). Eur. Pat. Appl. EP 373668 A2 19900620, 9 pp. DESIGNATED STATES: R: BE, CH, DE, ES, FR, GB, IT, LI, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1989-123230 19891215. PRIORITY: US 1988-285906 19881216.

GI



AB The title compds. [I; R1-R5 = H, alkyl(aryl), alkoxy(aryl), halo(alkyl), amino(alkyl), nitro(alkyl), (halo)aryl, acetamido; R4R5 may form a 5- or 6-membered carbocyclic or heterocyclic ring] were prepd. by hydrogenation of a **Mannich** base at 30 to .apprx.60 psi H pressure, in the presence of an aq. neutral or alk. solvent. Thus, 3-H2NC6H4OH was N-acetylated and the amide (92%) underwent a **Mannich** reaction with Me2NH and CH2O in MeOH to give 67% 5-acetamido-2-[(dimethylamino)methyl]phenol. The latter was dissolved in 3N KOH, Pd/C was added, and mixt. was shaken 3 h at 70-80.degree. under 60 psi of H to give 68% of the title compd. 2,5-Me(H2N)C6H3OH.

IT 124-40-3, reactions

(**Mannich** reaction of, with acetamidophenol, in prepn. of **cresol** deriv.)

RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC ICM C07C213-08

ICS C07C037-00; C07D317-64; C07C215-76; C07C215-86; C07C039-14; C07C233-43

CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

ST **cresol** prepn hydrogenation **Mannich** base;

Mannich reaction acetamidophenol;

acetamidodimethylaminomethylphenol hydrogenation

IT Hydrogenation

(of hydroxylated **Mannich** bases, **cresols** from)

IT **Mannich** bases

(phenolic, hydrogenation of, **cresols** from)

IT 124-40-3, reactions

(**Mannich** reaction of, with acetamidophenol, in prepn. of **cresol** deriv.)

- IT 591-27-5, m-Aminophenol
(N-acetylation of, in prepn. of **cresol** deriv.)
- IT 2977-73-3
(hydrogenation of, in prepn. of **cresol** deriv.)
- IT 1333-74-0
(hydrogenation, of hydroxylated **Mannich** bases, **cresols** from)
- IT 621-42-1P, 3-Acetamidophenol
(prepn. and **Mannich** reaction of, in prepn. of **cresol** deriv.)
- IT 13886-04-9P
(prepn. and hydrogenation of, in prepn. of **cresol** deriv.)
- IT 2835-95-2P, 5-Amino-o-**cresol** 130264-16-3P
(prepn. of, by hydrogenation of **Mannich** base precursor)
- L61 ANSWER 11 OF 26 HCAPLUS COPYRIGHT 2002 ACS
- 1989:514796 Document No. 111:114796 Synthesis and reactions of 1-allyl-4-**propargylhydroxybenzene**. Mamedov, G. Kh.; Said-Omar, A. G.; Khodzhaev, G. Kh. (Azerb. Inst. Nefti Khim. im. Azizbekova, Baku, USSR). Doklady - Akademiya Nauk Azerbaidzhanskoi SSR, 44(8), 35-8 (Russian) 1988. CODEN: DAZRA7. ISSN: 0002-3078.
- AB p-CH₂:CHCH₂OC₆H₄OR (I; R = H) reacted with HC.tplbond.CCH₂Br in Me₂CO contg. KOH at 50-60.degree. to give 55% I (R = CH₂C.tplbond.CH) (II), which reacted with HCHO and R₁2NH (R₁ = Et, Bu) in dry dioxane contg. CuCl gave 57-61% I (R = CH₂C.tplbond.CCH₂NR₁; same R₁). Treating II with EtMgBr and then MeCHO in Et₂O gave 43% I (R = CH₂C.tplbond.CCHMeOH), which reacted with R₁OCH₂Cl (same R₁) to give 42-49% I (R = CH₂C.tplbond.CCHMeOCH₂OR₁). Hydrating II in aq. HgO-H₂SO₄ gave 60% I (R = CH₂COMe).
- IT 109-89-7, Diethylamine, reactions 111-92-2, Dibutylamine
(aminomethylation with **paraformaldehyde** and, of allyl(propargyloxy)benzene)
- RN 109-89-7 HCAPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

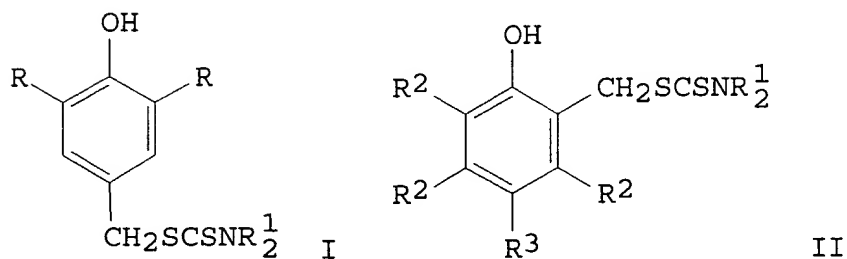


- RN 111-92-2 HCAPLUS
- CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

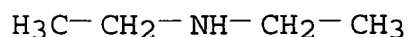


- CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
- ST allylphenol propargylation; allylpropargyloxybenzene prepn Grignard **Mannich** Kucherov; Kucherov hydration

- allylpropargyloxybenzene
- IT 75-07-0, **Acetaldehyde**, reactions
(Grignard reaction of, with allyl(propargyloxybenzene))
- IT 109-89-7, Diethylamine, reactions 111-92-2,
Dibutylamine
(aminomethylation with **paraformaldehyde** and, of
allyl(propargyloxy)benzene)
- L61 ANSWER 12 OF 26 HCAPLUS COPYRIGHT 2002 ACS
1987:575623 Document No. 107:175623 Alkylhydroxybenzyl
dialkyldithiocarbamates-antioxidizing agents for hydrocarbons.
Pereslegina, N. S.; Kuz'mina, G. N.; Markova, E. I.; Sanin, P. I.
(Inst. Neftekhim. Sint. im. Topchieva, Moscow, USSR). Neftekhimiya,
26(4), 563-70 (Russian) 1986. CODEN: NEFTAH. ISSN: 0028-2421.
OTHER SOURCES: CASREACT 107:175623.
- GI



- AB Seven title compds. (I; R = Me, Me₃C; R₁ = Et, Bu, n-pentyl; and II; R₁ = Et; n-pentyl; R₂, R₃ = H, Me) were prepd. in 45-89% yields from the corresponding alkylphenols by aminomethylation with R₂NH (same R₁) and CH₂O in HCl-H₂O-EtOH, followed by thiocarbamoylation with CS₂. Antioxidant activity during hydrocarbon oxidn. was highest for I (R = Me; same R₁).
- IT 109-89-7, Diethylamine, reactions 111-92-2
2050-92-2, Di-n-pentylamine
(**Mannich** reaction of alkylphenols with)
- RN 109-89-7 HCAPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



- RN 111-92-2 HCAPLUS
- CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

n-Bu-NH-Bu-n

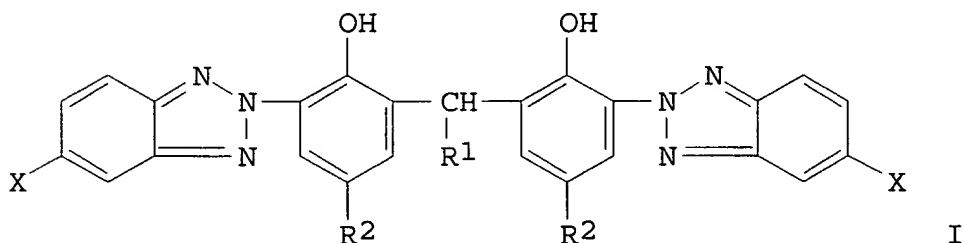
RN 2050-92-2 HCAPLUS
CN 1-Pentanamine, N-pentyl- (9CI) (CA INDEX NAME)

Me-(CH₂)₄-NH-(CH₂)₄-Me

CC 25-21 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
ST phenol alkyl aminomethylation alkylamine **formaldehyde**;
Mannich base thiocarbamoylation carbon disulfide;
methylhydroxybenzyl alkyl dithiocarbamate prepn antioxidant;
butylhydroxybenzyl alkyl dithiocarbamate; dithiocarbamate alkyl
alkylhydroxybenzyl
IT 109-89-7, Diethylamine, reactions 111-92-2
2050-92-2, Di-n-pentylamine
(**Mannich** reaction of alkylphenols with)
IT 106-44-5, p-Cresol, reactions 128-39-2,
2,6-Di-tert-butylphenol 576-26-1, 2,6-Dimethylphenol 697-82-5,
2,3,5-Trimethylphenol
(aminomethylation of, **Mannich** base by)
IT 97-77-8P 1516-94-5P 1634-02-2P 5721-31-3P 6476-26-2P
(formation of, in thiocarbamoylation of **Mannich** bases)

L61 ANSWER 13 OF 26 HCAPLUS COPYRIGHT 2002 ACS
1986:516685 Document No. 105:116685 Thermosetting synthetic resin
lacquer compositions having improved light stability. Kubota,
Naohiro; Shibata, Toshihiro; Nishimura, Atsushi (Adeka Argus
Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 180991 A2 19860514,
21 pp. DESIGNATED STATES: R: BE, CH, DE, FR, GB, LI, NL.
(English). CODEN: EPXXDW. APPLICATION: EP 1985-114201 19851107.
PRIORITY: JP 1984-234372 19841107.

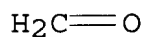
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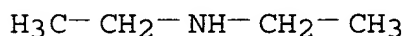
AB The triazoles I [R₁ = H, C₁-12 alkyl; R₂ = C₁-12 alkyl, C₇-16 arylalkyl; X = H, halogen, C₁-12 alkyl(oxy), C₆-10 aryl(oxy) C₇-16 arylalkyl(oxy)] are stabilizers for automotive finishes. Thus,

refluxing 2-benzotriazolyl-p-cresol 225, diethylamine 1.10, and **paraformaldehyde** 51.8 g in BuOH at 95-105.degree. for 24 h gave a **Mannich** base, of which 7.8 g in xylene was refluxed treated with NaOMe to give 2,2'-methylenebis(benzotriazolylp-cresol) (II). A mixt. of alkyd 70, melamine resin 30, and II 0.6 part was coated on steel and air dried to give coatings that failed after 2400 h accelerated weathering, vs. 900 without II.

IT 50-00-0, reactions
 (reaction of, with diethylamine and benzotriazolylphenols)
 RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



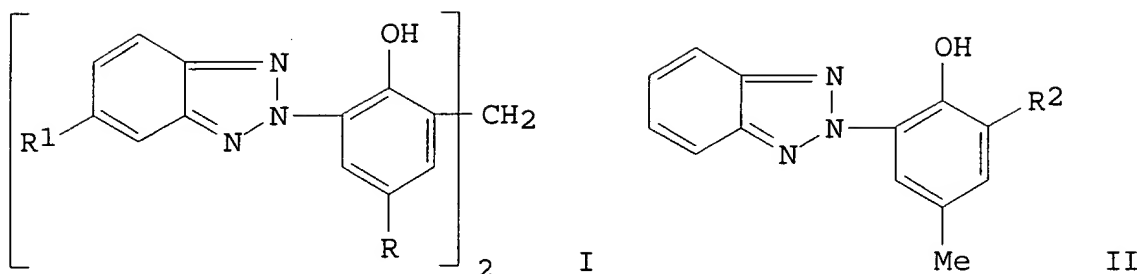
IT 109-89-7, reactions
 (reaction of, with **formaldehyde** and benzotriazolylphenols)
 RN 109-89-7 HCAPLUS
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM C08K005-34
 ICS C09D003-48; C09D007-12
 CC 42-5 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 28
 IT 3147-75-9 15989-00-1
 (reaction of, with benzotriazole derivs. diethylamine and **formaldehyde**)
 IT 50-00-0, reactions
 (reaction of, with diethylamine and benzotriazolylphenols)
 IT 2440-22-4
 (reaction of, with diethylamine and **formaldehyde**)
 IT 109-89-7, reactions
 (reaction of, with **formaldehyde** and benzotriazolylphenols)

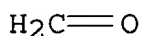
L61 ANSWER 14 OF 26 HCAPLUS COPYRIGHT 2002 ACS
 1986:478941 Document No. 105:78941 2,2'-Methylenebis(4-hydrocarbyl-6-benzotriazolylphenols). Kubota, Naohiro; Nishimura, Atsushi (Adeka Argus Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 180993 A2 19860514, 16 pp. DESIGNATED STATES: R: BE, CH, DE, FR, GB, LI, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1985-114203 19851107. PRIORITY: JP 1984-236290 19841109.

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AB The title compds. (I; R = alkyl, aralkyl, cycloalkyl; R1 = H, halo, alkyl, aryl, arylalkyl, alkoxy, aryloxy, arylalkoxy) were prepd. as light stabilizers for plastics (no data). Thus, benzotriazolylphenol II (R2 = H) underwent **Mannich** reaction with Et2NH and H2CO to give 99% II (R2 = CH2NEt2). This was refluxed in xylene with NaOMe to give 96% I (R = Me, R1 = H) of 91% purity.

IT 50-00-0, reactions
 (Mannich reaction of, with phenols and diethylamines)
 RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 109-89-7, reactions
 (Mannich reaction of, with phenols and formaldehyde)
 RN 109-89-7 HCAPLUS
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM C07D249-20
 CC 28-10 (Heterocyclic Compounds (More Than One Hetero Atom))
 Section cross-reference(s): 37
 IT 2440-22-4 3147-75-9 38080-26-1
 (Mannich reaction of, with diethylamine and formaldehyde)
 IT 50-00-0, reactions
 (Mannich reaction of, with phenols and diethylamines)
 IT 109-89-7, reactions
 (Mannich reaction of, with phenols and formaldehyde)
 IT 106-44-5, reactions

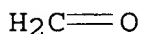
(condensation of, with **caprylaldehyde**)
 IT 124-13-0
 (condensation of, with **cresol**)

L61 ANSWER 15 OF 26 HCAPLUS COPYRIGHT 2002 ACS
 1985:5929 Document No. 102:5929 Ortho- or para-monoalkylated or 2,4-
 or 2,6-dialkylated phenols. Leston, Gerd (Koppers Co., Inc., USA).
 U.S. US 4480140 A 19841030, 6 pp. (English). CODEN: USXXAM.
 APPLICATION: US 1983-475719 19830316.

AB Halophenols (unsubstituted in one or two of the 2-, 4-, and
 6-positions) were converted to the title compds. by a
Mannich reaction followed by hydrogenolysis of the
 intermediates. Thus, 4-chloro-3-methylphenol underwent a
Mannich reaction with **HCHO** and Me_2NH , and
 subsequent hydrogenolysis over Pd gave 2,5- $\text{Me}_2\text{C}_6\text{H}_3\text{OH}$, 2,3- $\text{Me}_2\text{C}_6\text{H}_3\text{OH}$,
 and 2,3,6- $\text{Me}_3\text{C}_6\text{H}_2\text{OH}$.

IT 50-00-0, reactions
 (**Mannich** reaction of, with chlorophenol deriv. and
 dimethylamine, and hydrogenolysis of product from)

RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

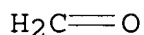


IT 124-40-3, reactions
 (**Mannich** reaction of, with **formaldehyde** and
 chlorophenol deriv., and hydrogenolysis of product from)
 RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C07C037-00; C07C039-06
 NCL 568784000
 CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 ST phenol trimethyl; xylenol; **cresol Mannich**
 hydrogenolysis
 IT Hydrogenolysis
 (of aminomethylated **chlorocresol**, di- and
 trimethylphenol from)
 IT **Mannich** reaction
 (of chlorophenol deriv. with **formaldehyde** and
 dimethylamine, and hydrogenolysis of product from)
 IT 50-00-0, reactions
 (**Mannich** reaction of, with chlorophenol deriv. and
 dimethylamine, and hydrogenolysis of product from)
 IT 124-40-3, reactions
 (**Mannich** reaction of, with **formaldehyde** and

- chlorophenol deriv., and hydrogenolysis of product from)
- IT 59-50-7
(**Mannich** reaction of, with **formaldehyde** and dimethylamine, and hydrogenolysis of product from)
- IT 108-39-4P, preparation
(formation of, in hydrogenolysis of aminomethylated **chlorocresol**)
- L61 ANSWER 16 OF 26 HCAPLUS COPYRIGHT 2002 ACS
1984:175458 Document No. 100:175458 Functionalized polyionenes bearing hydroquinone or **catechol** structure. Suzuki, Y.; Tazuke, S. (Res. Inst. Polym. Text., Yatabe, 305, Japan). Journal of Polymer Science, Polymer Letters Edition, 22(3), 129-33 (English) 1984. CODEN: JPYBAN. ISSN: 0360-6384.
- AB The title polymers were prepd. by polymg. 2,5-bis(dimethylaminomethyl)hydroquinone (I), 2,5-bis(piperidinomethyl)hydroquinone (II), or 3,6-bis(dimethylamino) **catechol** (III) [1019-74-5] with different halides in DMSO or ETOH. The reactivity of I and III was higher than that of II as detd. by the reduced viscosity of the polymers. Prolonged polymn. times favored high-mol.-wt. polymers when I was used. II gave only oligomeric ionenes regardless of the dihalide component or solvent used. The products were light reddish powders and were sol. in water or MeOH. 2,5-Bis(dimethylaminomethyl)hydroquinone-p-xylylene dichloride copolymer (IV) [86166-78-1] was cast from MeOH soln. to give brittle films. IV was oxidized in 1.5% Na₂CO₃ soln. to a benzoquinone structure. Because of its redox property, IV could be used as an O-absorbing agent in water and inhibited the radical polymn. of acrylamide.
- IT 50-00-0, reactions
(**Mannich** reaction of, with **catechol** and dimethylamine)
- RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- IT 124-40-3, reactions
(**Mannich** reaction of, with **catechol** and **formaldehyde**)
- RN 124-40-3 HCAPLUS
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)

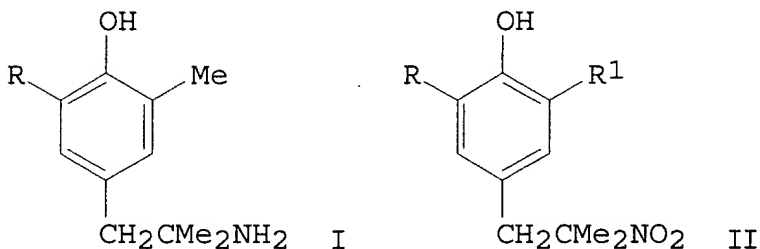


- CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 61
- ST ionene polymer functional group; hydroquinone ionene polymer;

- catechol** ionene polymer; acrylamide polymn inhibitor
polyionene; water deoxygenation polyionene
- IT Ionene polymers
(**catechol**-based, prepn. of)
- IT 50-00-0, reactions
(**Mannich** reaction of, with **catechol** and dimethylamine)
- IT 124-40-3, reactions
(**Mannich** reaction of, with **catechol** and **formaldehyde**)
- IT 120-80-9, reactions
(**Mannich** reaction of, with dimethylamine and **formaldehyde**)

L61 ANSWER 17 OF 26 HCAPLUS COPYRIGHT 2002 ACS
1983:594537 Document No. 99:194537 Ortho-methylation of
p-(2-amino-2-methylpropyl)phenols. Renger, Bernd (HOECHST A.-G.,
Frankfurt, D-6230/80, Fed. Rep. Ger.). Archiv der Pharmazie
(Weinheim, Germany), 316(9), 812-14 (German) 1983. CODEN: ARPMAS.
ISSN: 0365-6233. OTHER SOURCES: CASREACT 99:194537.

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- AB Methylphenols I (R = H, MeO) were prepd. from II (R = H, MeO, Cl; R1 = H) by **Mannich** reaction with Me2NH/HCHO and hydrogenation of II (same R, R1 = CH2NMe2) over Pd/C.
- IT 124-40-3, reactions
(**Mannich** reaction of, with (nitroisobutyl)phenols)
- RN 124-40-3 HCAPLUS
- CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



- CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
- ST phenol methyl deriv; **cresol** aminoisobutyl; **Mannich** reaction phenol deriv
- IT Methylation
(of phenol derivs. via **Mannich** reaction)
- IT 124-40-3, reactions

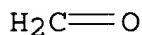
(**Mannich** reaction of, with (nitroisobutyl)phenols)
 IT 16066-97-0 85628-43-9 85628-46-2
 (**Mannich** reaction of, with dimethylamine and
formaldehyde)

L61 ANSWER 18 OF 26 HCAPLUS COPYRIGHT 2002 ACS
 1982:455410 Document No. 97:55410 Effect of certain substituents in
 aromatic hydroxyketones on the direction of a **Mannich**
 reaction. Kuliev, A. M.; Sardarova, S. A.; Agamaliev, M. M.
 (USSR). Prasadki k Smazochnym Maslam, 7, 3-5 (Russian) 1981.
 CODEN: PSZMBD. ISSN: 0370-2103. OTHER SOURCES: CASREACT 97:55410.

AB Aminomethylation of 3,4-R(HO)C₆H₃COMe (R = Me, Cl) and 4-HOC₆H₄COPh
 with **HCHO** and Me₂NH, piperidine, or morpholine in C₆H₆ at
 35-40.degree. proceeded exclusively at the ring C ortho to the OH
 group.

IT 50-00-0, reactions
 (**Mannich** reaction of hydroxyacetophenones and
 -benzophenone with secondary amines and, regiospecificity of)

RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 124-40-3, reactions
 (**Mannich** reaction of, with **formaldehyde** and
 hydroxyacetophenones and -benzophenone, regiochem. of)

RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



CC 25-16 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 ST **Mannich** hydroxyphenyl ketone regiospecificity;
 aminomethylation hydroxyacetophenone hydroxybenzophenone regiochem;
 acetophenone hydroxy **Mannich** regiospecificity;
 benzophenone hydroxy **Mannich** regiospecificity

IT Ketones, reactions
 (**hydroxyarom.**, **Mannich** reaction of,
 regiospecificity of)

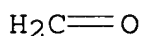
IT Substituent effect
 (in **Mannich** reaction of hydroxyacetophenones and
 -benzophenone)

IT Regiochemistry
 (of **Mannich** reaction of hydroxyacetophenones and
 -benzophenone)

IT **Mannich** reaction
 (of hydroxyacetophenones and -benzophenone, regiospecificity of)

IT Amines, reactions

- (secondary, **Mannich** reaction of, with **formaldehyde** and hydroxyacetophenones and -benzophenone, regiochem. of)
- IT 50-00-0, reactions
(**Mannich** reaction of hydroxyacetophenones and -benzophenone with secondary amines and, regiospecificity of)
- IT 876-02-8 1137-42-4 2892-29-7
(**Mannich** reaction of, regiospecificity of)
- IT 110-89-4, reactions 110-91-8, reactions 124-40-3, reactions
(**Mannich** reaction of, with **formaldehyde** and hydroxyacetophenones and -benzophenone, regiochem. of)
- L61 ANSWER 19 OF 26 HCAPLUS COPYRIGHT 2002 ACS
1980:184291 Document No. 92:184291 Study of **Mannich** bases based on cyclopentenylphenols as inhibitors of acid corrosion. Belov, P. S.; Ivanov, E. S.; Lazarev, V. A. (Mosk. Inst. Neftekhim. Gazov. Prom., Moscow, USSR). Korroziya i Zashchita v Neftegazovoi Promyshlennosti (1), 11-13 (Russian) 1980. CODEN: KZNPAN.
- AB The **HCHO** and Et₂NH condensation products with cyclopentenylphenols prepd. from PhOH [108-95-2], o-**cresol**, m-**cresol**, or p-**cresol** were tested as steel 10 [12725-33-6] and U8 [12743-82-7] corrosion inhibitors in 4 N HCl. At 10-2 mol/L the condensation product made from **cresols** was the most effective corrosion inhibitor. The synthesized condensation products were effective corrosion inhibitors in HCl. The inhibitors preserved the plasticity of C steel and may be used with HCl treatments of petroleum-gas wells.
- IT 50-00-0, uses and miscellaneous 109-89-7, uses and miscellaneous
(**Mannich** bases contg., as corrosion inhibitors, for hydrochloric acid treatment of petroleum gas wells)
- RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- RN 109-89-7 HCAPLUS
CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

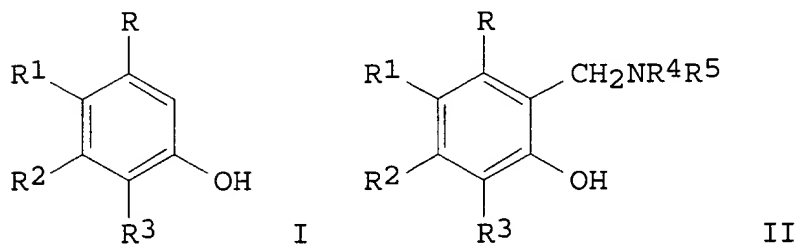


- CC 55-9 (Ferrous Metals and Alloys)
ST steel corrosion hydrochloric inhibitor; petroleum well hydrochloric inhibitor; gas well hydrochloric inhibitor; **Mannich** base hydrochloric inhibitor; cyclopentenylphenol hydrochloric inhibitor
IT Corrosion inhibitors
(from **Mannich** bases based on cyclopentenylphenols, for

- hydrochloric acid treatment of petroleum gas wells)
- IT **Mannich** bases
(from cyclopentenylphenols, for corrosion inhibitor of steel by hydrochloric acid)
- IT 95-48-7D, cyclopentenyl derivs. 106-44-5D, cyclopentenyl derivs. 108-39-4D, cyclopentenyl derivs. 108-95-2D, cyclopentenyl derivs.
(**Mannich** bases based on, as inhibitors for hydrochloric acid treatment of petroleum gas wells)
- IT 50-00-0, uses and miscellaneous 109-89-7, uses and miscellaneous
(**Mannich** bases contg., as corrosion inhibitors, for hydrochloric acid treatment of petroleum gas wells)
- IT 12725-33-6, reactions 12743-82-7, reactions
(corrosion of, by hydrochloric acid, **Mannich** bases from cyclopentenylphenols as inhibitors for)

L61 ANSWER 20 OF 26 HCAPLUS COPYRIGHT 2002 ACS
1979:611070 Document No. 91:211070 Aminoalkylpolyphenols. Leonte, Mircea; Georgescu, Milpomenia; Toma, Gabriela; Sinchievici, Eleonora; Roncea, Constantin (Rom.). Rom. RO 61894 19770415, 4 pp. (Romanian). CODEN: RUXXA3. APPLICATION: RO 1971-66681 19710124.

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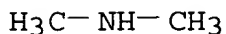


- AB Phenols I (R = H, CO₂H, carbalkoxy; R₁, R₂, and R₃ are H or OH) reacted with **HCHO** and amines to give the resp. II (R₄ and R₅ are alkyl, or NR₄R₅ = heterocycle, such as piperidino, morpholino, pyrrolidino), useful as antioxidants in food and plastics (no data). The reaction of gallic acid with **HCHO** and Me₂NH gave II (R = CO₂H, R₁ = H, R₂ = R₃ = OH, R₄ = R₅ = Me).
- IT 109-89-7, reactions 124-40-3, reactions
(**Mannich** reaction of, with formaldehyde and hydroxybenzoic acid derivs.)
- RN 109-89-7 HCAPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS

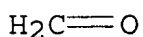
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IT 50-00-0, reactions
(**Mannich** reaction of, with hydroxybenzoic acid deriv.)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IC C07C091-30

CC 25-10 (Noncondensed Aromatic Compounds)

Section cross-reference(s): 17, 36

ST pyrogallol aminomethyl prepn antioxidant; aminomethylpyrogallol prepn antioxidant food; plastics antioxidant aminomethylpyrogallol prepn; resorcinol aminomethyl prepn antioxidant; **Mannich** pyrogallol resorcinol hydroquinone

IT Antioxidants

(carboxy(aminomethyl)**benzenediols** and -triols)

IT **Mannich** reaction

(of hydroxybenzoic acid derivs. with **formaldehyde** and amines)

IT 89-86-1 99-24-1 121-79-9 149-91-7, reactions 490-79-9
610-02-6 1034-01-1 1166-52-5 2150-47-2 56128-66-6

(**Mannich** reaction of, with **formaldehyde** and amines)

IT 100-61-8, reactions

(**Mannich** reaction of, with **formaldehyde** and gallic acid)

IT 109-89-7, reactions 110-89-4, reactions 110-91-8,
reactions 124-40-3, reactions

(**Mannich** reaction of, with **formaldehyde** and hydroxybenzoic acid derivs.)

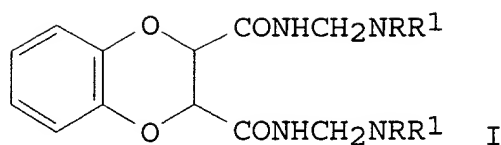
IT 50-00-0, reactions

(**Mannich** reaction of, with hydroxybenzoic acid deriv.)

L61 ANSWER 21 OF 26 HCAPLUS COPYRIGHT 2002 ACS

1978:509293 Document No. 89:109293 Nitrogen-substituted
1,4-benzodioxan-2,3-dicarboxamides. I. **Mannich** bases of
1,4-benzodioxan-2,3-dicarboxamide with secondary aliphatic amines.
Velichkov, L.; Karag'ozov, S. (Farm. Fak., Med. Akad., Sofia,
Bulg.). Farmatsiya (Sofia, Bulgaria), 27(5), 1-5 (Bulgarian) 1977.
CODEN: FMTYA2. ISSN: 0428-0296.

GI

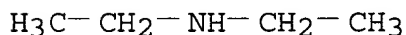


AB Cyclization of o-(HO)₂C₆H₄ with dl-EtO₂CCHBrCHBrCO₂Et gave 57% di-Et cis- and trans-1,4-benzodioxan-2,3-dicarboxylate, which were converted to the diamides and then aminomethylated with aq. **HCHO** and RNHR₁ (R = R₁ = Me, Et, Pr, Bu, EtCHMe; R = PhCH₂, R₁ = Me, CHMe₂) to give 50-70.3% title compds. I.

IT 109-89-7, reactions 111-92-2 124-40-3, reactions 142-84-7 626-23-3
(aminomethylation of benzodioxandicarboxamide with **formaldehyde** and)

RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



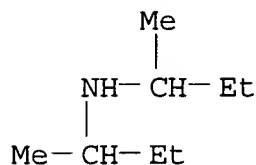
RN 142-84-7 HCAPLUS

CN 1-Propanamine, N-propyl- (9CI) (CA INDEX NAME)

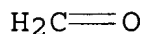


RN 626-23-3 HCAPLUS

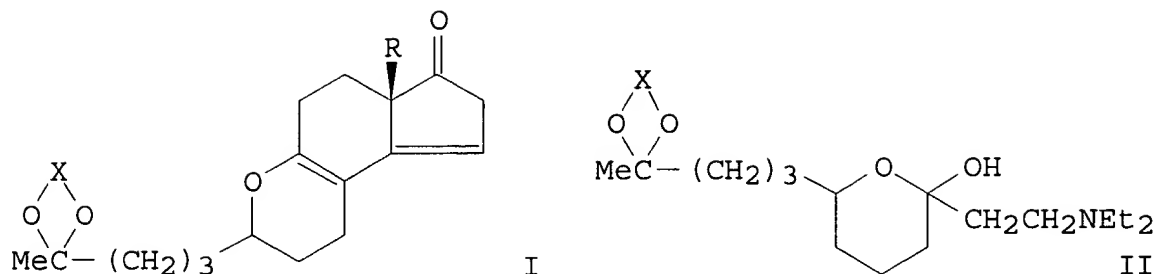
CN 2-Butanamine, N-(1-methylpropyl)- (9CI) (CA INDEX NAME)



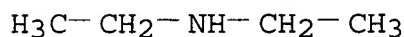
IT 50-00-0, reactions
 (aminomethylation of benzodioxandicarboxamides with secondary
 amines and)
 RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



CC 28-12 (Heterocyclic Compounds (More Than One Hetero Atom))
 ST benzodioxandicarboxamide **Mannich** base; aminomethylation
 benzodioxandicarboxamide; cyclization **pyrocatechol**
 dibromosuccinate; succinate dibromo cyclization **pyrocatechol**
 IT Amines, reactions
 (secondary, aminomethylation of benzodioxandicarboxamide with
formaldehyde and)
 IT 102-97-6 103-67-3 109-89-7, reactions 111-92-2
 124-40-3, reactions 142-84-7 626-23-3
 (aminomethylation of benzodioxandicarboxamide with
formaldehyde and)
 IT 50-00-0, reactions
 (aminomethylation of benzodioxandicarboxamides with secondary
 amines and)
 IT 1114-30-3
 (cyclization of, with **pyrocatechol**)
 L61 ANSWER 22 OF 26 HCAPLUS COPYRIGHT 2002 ACS
 1977:5692 Document No. 86:5692 Aryl ketals of polycyclic oxo
 compounds. Rosenberger, Michael; Saucy, Gabriel (Hoffmann-La Roche,
 Inc., USA). U.S. US 3960896 19760601, 23 pp. Division of U.S.
 3,907,827. (English). CODEN: USXXAM. APPLICATION: US 1975-585145
 19750609.
 GI



- AB The cyclopenta[f][1]benzopyranones I, (R = Et, Me; X = o-phenylene, 4,5-dimethyl-o-phenylene, 2,3-naphthylene), intermediates in the prepn. of 13-ethylgon-4-ene-3,17-dione and 19-norandrost-4-ene-3,17-dione, were prepd. by the condensation of 2-ethyl- and 2-methyl-1,3-cyclopentanediones with **Mannich** base II. II was prepd. from 9,9-(o-phenylenedioxy)-5-hydroxydecanoic acid lactone by successive reaction with CH₂:CHMgCl and Et₂NH.
- IT 109-89-7, reactions
(condensation of, with vinyl(alkylenedioxy)tetrahydropyran)
- RN 109-89-7 HCAPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



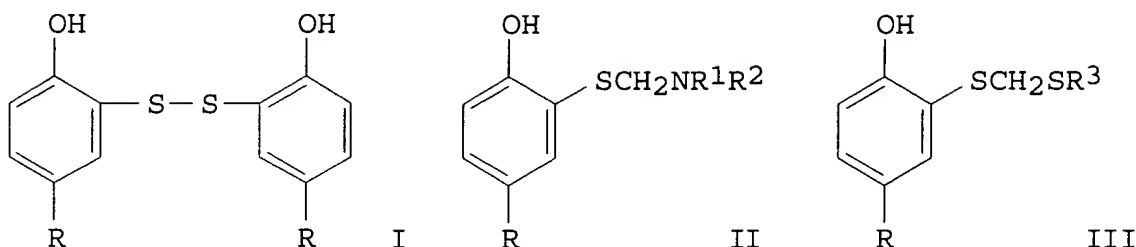
- IC C07D317-44
- NCL 260340500
- CC 32-3 (Steroids)
Section cross-reference(s): 26
- ST gonenedione ethyl; norandrostanedione; cyclopentabenzopyranone; cyclopentanedione **Mannich** base condensation; hydroxydecanoate lactone vinyl chloride Grignard
- IT 5978-08-5 30513-27-0
(Grignard reaction of, with **glutaraldehyde**)
- IT 109-89-7, reactions
(condensation of, with vinyl(alkylenedioxy)tetrahydropyran)
- IT 30513-19-0P 30513-24-7P
(prepn. and Grignard reaction of, with **glutaraldehyde**)
- IT 30658-25-4P
(prepn. and ketalization of, with **catechol** and naphthalenedione)

L61 ANSWER 23 OF 26 HCAPLUS COPYRIGHT 2002 ACS

1976:576991 Document No. 85:176991 Synthesis and some reactions of o-hydroxyalkylthiophenols. Mamedov, F. N.; Aliev, Sh. R.; Movsum-Zade, M.; Gusein-Zade, S. M.; Akchurina, T. Kh. (Inst. Khim. Prasadok, Baku, USSR). Tezisy Dokl. Nauchn. Sess. Khim. Tekhnol. Org. Soedin. Sery Sernistykhn Neftei, 13th, 113-14. Editor(s):

Gal'pern, G. D. "Zinatne": Riga, USSR. (Russian) 1974. CODEN:
33SUAA.

GI



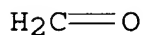
AB Treatment of disulfides I (R = Me, Bu, pentyl, C₅H₁₁) with Zn-HCl gave 4,2-R(HS)C₆H₃OH, which gave II (NR₁R₂ = Et₂N, Bu₂N, morpholino, piperidino) when treated with CH₂O-HNR₁R₂. Reaction of II with R₃SH (R₃ = Bu, C₇H₁₅, C₁₂H₂₅, Ph) gave III.

IT 50-00-0, reactions

(aminomethylation by amines and, of hydroxythiophenols)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 109-89-7, reactions 111-92-2

(aminomethylation by **formaldehyde** and, of hydroxythiopenyl)

RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



CC 25-10 (Noncondensed Aromatic Compounds)

IT Aminomethylation

Mannich reaction

(of **hydroxybenzenethiols**)

IT 50-00-0, reactions

(aminomethylation by amines and, of hydroxythiophenols)

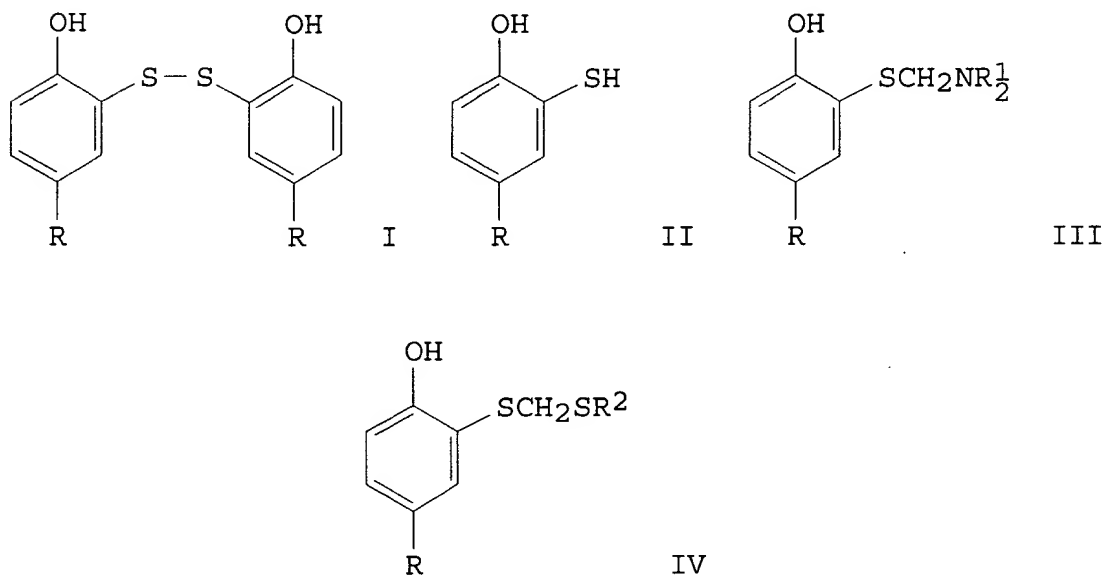
IT 109-89-7, reactions 110-89-4, reactions 110-91-8
111-92-2

(aminomethylation by formaldehyde and, of
hydroxythiopenyl)

L61 ANSWER 24 OF 26 HCAPLUS COPYRIGHT 2002 ACS

1976:150277 Document No. 84:150277 Synthesis of aminomethyl
derivatives of 2-hydroxy-5-tert-alkylthiophenols and their cleavage
by thiols. Kuliev, A. M.; Aliev, Sh. R.; Mamedov, F. N.;
Movsum-Zade, M. (Inst. Khim. Prisadok, Baku, USSR). Zhurnal
Organicheskoi Khimii, 12(2), 426-31 (Russian) 1976. CODEN: ZORKAE.
ISSN: 0514-7492.

GI



AB Redn. of disulfide I (R = Me₃C, CMe₂CH₂CMe₃) with Zn-HCl gave
31.3-43% II. Mannich reaction of II with HCHO
and R₁₂NH (R₁ = Me, Et, Bu; R₂₁N = morpholino, piperidino) gave
21.4-66.9% III. When III (R = Me₃C, R₁ = Me; R = CMe₂CH₂CMe₃, R₁ =
Et) were treated with R₂SH (R₂ = Bu, dodecyl, Ph, 5,2-Bu(HO)C₆H₃,
pentyl), 44.3-73.4% IV were obtained.

IT 109-89-7, reactions 111-92-2 124-40-3,
reactions

(Mannich reaction of, with formaldehyde and
tert-alkylhydroxythiophenols)

RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



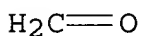
RN 111-92-2 HCAPLUS
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IT 50-00-0, reactions
 (Mannich reaction of, with tert-alkylhydroxythiophenols)
 RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



CC 25-10 (Noncondensed Aromatic Compounds)
 ST benzenethiol tertbutyl; aminomethylation **hydroxybenzenethiol**
 ; **Mannich** reaction benzenethiol; thiol cleavage
 aminomethylthiophenol
 IT Aminomethylation
Mannich reaction
 (of hydroxy-tert-alkylthiophenols)
 IT 109-89-7, reactions 110-89-4, reactions 110-91-8
 111-92-2 124-40-3, reactions
 (**Mannich** reaction of, with **formaldehyde** and
 tert-alkylhydroxythiophenols)
 IT 50-00-0, reactions
 (**Mannich** reaction of, with tert-alkylhydroxythiophenols)
 IT 58999-47-6P 58999-48-7P
 (prepn. and **Mannich** reaction of)

L61 ANSWER 25 OF 26 HCAPLUS COPYRIGHT 2002 ACS
 1975:140075 Document No. 82:140075 Synthesis and study of potential
 inhibitors of the enzyme **catechol**-o-methyltransferase.
 IV. Condensation of 3,4,5-substituted acetophenones with
formaldehyde and various amines. Veinbergs, J.; Jakobson,
 I.; Grinsteins, V. (Latv. Gos. Univ. im. Stucka, Riga, USSR).
 Latvijas PSR Zinatnu Akademijas Vestis, Kimijas Serija (6), 724-8
 (Russian) 1974. CODEN: LZAKAM. ISSN: 0002-3248.

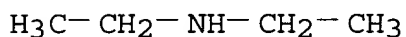
GI For diagram(s), see printed CA Issue.

AB Aminopropiophenones (I; R1 = R2 = Et, Me, R1R2N = morpholino, piperidino, 1,2,3,4-tetrahydro-2-isoquinoliny1, 1,4-piperazinediyl; R3 = Br, NO2; R4 = Me, OH; R5 = Br, NO2) were prepd. in 8-12% yield where R3, R5 = NO2 and in 55-79% yields for the remainder by **Mannich** reaction of an acetophenone with a secondary amine and **paraformaldehyde**.

IT 109-89-7, reactions 124-40-3, reactions 506-59-2 660-68-4
(**Mannich** reaction of, with acetophenones)

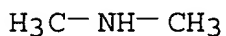
RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 506-59-2 HCAPLUS

CN Methanamine, N-methyl-, hydrochloride (9CI) (CA INDEX NAME)



HCl

RN 660-68-4 HCAPLUS

CN Ethanamine, N-ethyl-, hydrochloride (9CI) (CA INDEX NAME)



● HCl

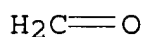
CC 28-18 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 25

ST **Mannich** acetophenone amine; propiophenone amino; enzyme inhibition; **catechol** methyltransferase inhibition

- IT 109-89-7, reactions 110-89-4, reactions 110-91-8
 124-40-3, reactions 142-64-3 506-59-2
 660-68-4 6091-44-7 10024-89-2 14099-81-1
 (Mannich reaction of, with acetophenones)
- IT 2887-72-1 52129-61-0 55548-03-3
 (Mannich reaction of, with secondary amines)
- L61 ANSWER 26 OF 26 HCAPLUS COPYRIGHT 2002 ACS
 1972:563973 Document No. 77:163973 **Mannich** reactions on
 1,2-diketones. Greenhill, J. V.; Ingle, P. H. B.; Ramli, Mohamed
 (Sch. Pharm., Univ. Bradford, Bradford, UK). Journal of the
 Chemical Society, Perkin Transactions 1: Organic and Bio-Organic
 Chemistry (1972-1999) (13), 1667-9 (English) 1972. CODEN: JCPRB4.
 ISSN: 0300-922X.
- GI For diagram(s), see printed CA Issue.
- AB The product of a **Mannich** reaction on MeCOCOME depended on
 the secondary base used; with Me₂NH the product was
 2,4-bis[(dimethylamino)methyl]-2-methyl-3(2H)-furanone (I); with
 morpholine or N-methyl-piperazine a bis-**Mannich** base (e.g.
 II) derived from 2,5-dimethyl-1,4-**benzenediol** was
 obtained, while pyrrolidine gave the expected open-chain deriv.,
 1,6-dipyrrolidino-3,4-hexanedione. PhCH₂-COCOME and
 1,2-cyclohexanedione reacted with Me₂NH to give
 PhCH:C(OH)CO(CH₂)₂NMe₂ and 3,6-bis[(dimethylamino)-methyl]-2-hydroxy-
 2-cyclohexen-1-one.
- IT 124-40-3, reactions
 (Mannich reaction of, with diketones)
- RN 124-40-3 HCAPLUS
- CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



- IT 50-00-0, reactions
 (Mannich reaction of, with diketones and secondary
 amines)
- RN 50-00-0 HCAPLUS
- CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



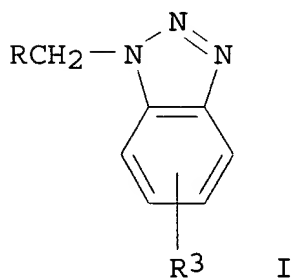
- CC 23-15 (Aliphatic Compounds)
 Section cross-reference(s): 24, 25, 27
- ST butanedione dimethylamine **Mannich**; furanone butanedione
Mannich dimethylamine; hydroquinone butanedione
Mannich morpholine; cyclohexenone **Mannich**
 cyclohexanedione; base effect **Mannich** butanedione;
 pentanedione **Mannich** dimethylamine; hexanedione
Mannich dimethylamine

- IT Ketones, reactions
(**Mannich** reaction of di- with secondary amines)
- IT Amines, reactions
(**Mannich** reaction of secondary, with diketones and phenols)
- IT **Mannich** reaction
(of diketones with secondary amines and with phenols)
- IT 95-54-5, reactions 109-01-3 110-91-8 123-75-1 496-72-0
(**Mannich** reaction of, with butanedione)
- IT 124-40-3, reactions
(**Mannich** reaction of, with diketones)
- IT 50-00-0, reactions
(**Mannich** reaction of, with diketones and secondary amines)
- IT 579-07-7 600-14-6 765-87-7 3848-24-6 4437-51-8 38087-02-4
(**Mannich** reaction of, with dimethylamine)
- IT 1124-04-5 2785-74-2
(**Mannich** reaction of, with morpholine)
- IT 431-03-8
(**Mannich** reaction of, with secondary amines)

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L62 ANSWER 1 OF 20 HCAPLUS COPYRIGHT 2002 ACS
2000:106888 Document No. 132:151824 Preparation of benzotriazoles as corrosion inhibitors for copper and copper alloys. Sugii, Naoyuki; Yamauchi, Toshiyuki; Takahashi, Reiichi (Johoku Kagaku Kogyo K. K., Japan). Jpn. Kokai Tokkyo Koho JP 2000044549 A2 20000215, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-213098 19980728.

GI



AB Benzotriazoles I [R = (un)substituted hydrocarbyl; R3 = H, Me, Cl, CO2R4; R4 = H, alkyl] are prepd. by treatment of (benzene ring-substituted) 1H-benzotriazole with RCH2NR1R2 (R = the same as above; R1, R2 = H, alkyl; R1 = R2 .noteq. H). The products are also useful as **antioxidants** and light stabilizers for polymers (no data). 1H-benzotriazole was treated with **Mannich** base prepd. from 2,4-di-tert-butylphenol,

paraformaldehyde, and Bu₂NH at 100-120.degree. for 2 h to give 99% condensation product, which showed good corrosion inhibiting effect for Cu plate.

IT 111-92-2, Dibutylamine
(prepn. of benzotriazoles as corrosion inhibitors,
antioxidants, and light stabilizers)

RN 111-92-2 HCAPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

n-Bu-NH-Bu-n

IC ICM C07D249-18

ICS C23F011-00; C23F011-14

CC 28-10 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 37, 56

ST benzotriazole prepn corrosion inhibitor copper alloy;
Mannich base condensation benzotriazole; **antioxidant**
light stabilizer polymer benzotriazole prepn

IT Corrosion inhibitors
(for Cu and Cu alloys; prepn. of benzotriazoles as corrosion
inhibitors, **antioxidants**, and light stabilizers)

IT **Antioxidants**

Light stabilizers

(for polymers; prepn. of benzotriazoles as corrosion inhibitors,
antioxidants, and light stabilizers)

IT Polymers, miscellaneous

(prepn. of benzotriazoles as **antioxidants** and light
stabilizers for polymers)

IT Condensation reaction

(prepn. of benzotriazoles as corrosion inhibitors,
antioxidants, and light stabilizers)

IT **Mannich** bases

(prepn. of benzotriazoles as corrosion inhibitors,
antioxidants, and light stabilizers)

IT Copper alloy, base

(corrosion inhibitors for; prepn. of benzotriazoles as corrosion
inhibitors, **antioxidants**, and light stabilizers)

IT 132980-36-0P 257907-12-3P 257907-13-4P 257907-14-5P
257907-15-6P 257942-63-5P

(prepn. of benzotriazoles as corrosion inhibitors,
antioxidants, and light stabilizers)

IT 95-14-7, 1H-Benzotriazole 96-76-4, 2,4-Di-tert-butylphenol

111-92-2, Dibutylamine 140-66-9 2409-55-4,

2-tert-Butyl-4-methylphenol 2440-22-4,

2-(2-Hydroxy-5-methylphenyl)benzotriazole 29385-43-1,

Tolyltriazole 30525-89-4, **Paraformaldehyde**

113053-50-2, Methyl 1H-Benzotriazole-5-carboxylate

(prepn. of benzotriazoles as corrosion inhibitors,
antioxidants, and light stabilizers)

IT 257907-16-7P

(prepn. of benzotriazoles as corrosion inhibitors,
antioxidants, and light stabilizers)

L62 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2002 ACS

1992:637009 Document No. 117:237009 **Mannich** base- and antimony-containing corrosion inhibitors for aqueous hydrochloric acid-based acidizing compositions for petroleum recovery operations.. Walker, Michael L. (Halliburton Co., USA). Eur. Pat. Appl. EP 489498 A1 19920610, 17 pp. DESIGNATED STATES: R: DE, FR, GB, GR, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1991-310197 19911105. PRIORITY: US 1990-608877 19901105.

AB **Mannich** bases, as corrosion inhibitors for aq. Sb-contg. HCl-based acidizing compns. for petroleum enhanced recovery are prepd. by reaction of (1) a compd. with a reactive H, (2) a compd. contg. a carbonyl group with a H atom attached to a C atom adjacent to it, (3) an **aldehyde**, and (4) a C5-60-fatty compd. or a C1-18-alkyl N heterocycle. The reaction precursors are reacted at 140-250.degree.F for 4-48 h at a 1:0.6-10:0.5-10:0.10-10 equiv. ratio in the presence of a mineral acid catalyst. The Sb source is chosen from Sb2O3, Sb2O5, SbCl3, SbCl5, SbF3, SbF5, Sb tartrate, citrate, alkali tartrates, alkali citrates, alkali pyroantimonates, and Sb reaction products with ethylene glycol and H2O2. A corrosion inhibitor was prepd. by refluxing aq. thiourea 0.15, acetophenone 0.3, 3% **HCHO**, and oleic acid 0.2 mol for 16 h. A corrosion inhibitor (1 mL), prepd. by blending 4 mL of the above **Mannich** base with 4 mL aq. methylnaphthylquinolium chloride and 1.5 mL ethoxylated **nonylphenol**, was incorporated into 100 mL 15% aq. HCl, contg. 0.018 M Sb (prepd. by reacting Sb2O3 and H2O2 in aq. ethylene glycol). Corrosion loss from a coupon (API N80 steel) immersed in this soln. for 2 h at 300.degree. was 0.005 lb/ft2, compared with 0.53 lb/ft2 for a coupon immersed in a soln. contg. no Sb.

IT 109-89-7D, Diethylamine, **Mannich** reaction products
(**Mannich** reaction products, corrosion inhibitors, for antimony-contg. aq. hydrochloric acid-based acidizing compns., for petroleum wells)

RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IT 50-00-0D, **Formaldehyde**, **Mannich** reaction products 111-92-2D, Dibutyl amine, **Mannich** reaction products
(corrosion inhibitors, for antimony-contg. aq. hydrochloric acid-based acidizing compns., for petroleum wells)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

$$\text{H}_2\text{C}=\text{O}$$

RN 111-92-2 HCAPLUS
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

n-Bu-NH-Bu-n

IC ICM E21B043-27
 ICS E21B041-02; C23F011-04
 CC 51-2 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 55
 ST corrosion inhibitor petroleum well acidizing; **Mannich** base
 petroleum well acidizing; antimony petroleum well acidizing
anticorrosion
 IT Petroleum recovery
 (acidizing in, **anticorrosion** antimony-based
 hydrochloric acid compns. for, **Mannich** bases as
 corrosion inhibitors for)
 IT Petroleum wells
 (acidizing of, **anticorrosion** antimony-based
 hydrochloric acid compns. for, **Mannich** bases as
 corrosion inhibitors for)
 IT **Mannich** bases
 (corrosion inhibiting compns. contg., antimony-based, for
 acidizing compns. for petroleum well stimulation)
 IT Amines, compounds
 (coco alkyl, ethoxylated, reaction products, **Mannich**,
 corrosion inhibitors, for antimony-contg. aq. hydrochloric
 acid-based acidizing compns., for petroleum wells)
 IT Amines, compounds
 (coco alkyl, reaction products, **Mannich**, corrosion
 inhibitors, for antimony-contg. aq. hydrochloric acid-based
 acidizing compns., for petroleum wells)
 IT Quaternary ammonium compounds, compounds
 (dicoco alkyldimethyl, **Mannich** reaction products,
 corrosion inhibitors, for antimony-contg. aq. hydrochloric
 acid-based acidizing compns., for petroleum wells)
 IT Essential oils
 (pine, **Mannich** reaction products, corrosion inhibitors,
 for antimony-contg. aq. hydrochloric acid-based acidizing
 compns., for petroleum wells)
 IT 56-34-8D, Tetraethylammonium chloride, **Mannich** reaction
 products 75-12-7D, Formamide, **Mannich** reaction products
 91-22-5D, Quinoline, **Mannich** reaction products 95-87-4D,
Mannich reaction products 102-69-2D, Tripropylamine,
Mannich reaction products 102-82-9D, Tributylamine,
Mannich reaction products 102-86-3D, Trihexylamine,
Mannich reaction products 108-89-4D, 4-Picoline,
Mannich reaction products 108-99-6D, 3-Picoline,

Mannich reaction products 109-73-9D, Butyl amine,
Mannich reaction products 109-89-7D, Diethylamine,
Mannich reaction products 111-71-7D, Heptanal,
Mannich reaction products 112-12-9D, Methyl nonyl ketone,
Mannich reaction products 123-72-8D, Butanal,
Mannich reaction products 123-76-2D, Levulinic acid,
Mannich reaction products 141-43-5D, **Mannich**
 reaction products 301-02-0D, Oleamide, **Mannich** reaction
 products 628-13-7D, Pyridinium chloride, **Mannich**
 reaction products 2591-86-8D, Formylpiperidine, **Mannich**
 reaction products 5877-42-9D, Ethyl octynol, **Mannich**
 reaction products 53452-70-3, Undecanone 57412-63-2D, Hexynol,
Mannich reaction products

(**Mannich** reaction products, corrosion inhibitors, for
 antimony-contg. aq. hydrochloric acid-based acidizing compns.,
 for petroleum wells)

IT 50-00-0D, **Formaldehyde**, **Mannich** reaction
 products 57-13-6D, Urea, **Mannich** reaction products
 60-35-5D, Acetamide, **Mannich** reaction products 62-56-6D,
 Thiourea, **Mannich** reaction products 78-93-3D,
 2-Butanone, **Mannich** reaction products 91-63-4D,
 Quinaldine, **Mannich** reaction products 98-86-2D,
 Acetophenone, **Mannich** reaction products 107-02-8D,
 Acrolein, **Mannich** reaction products 108-48-5D,
 2,6-Lutidine, **Mannich** reaction products 108-94-1D,
 Cyclohexanone, **Mannich** reaction products 108-95-2D,
Phenol, **Mannich** reaction products 109-06-8D,
 2-Picoline, **Mannich** reaction products 110-86-1D,
 Pyridine, **Mannich** reaction products 110-91-8D,
 Morpholine, **Mannich** reaction products 111-92-2D,
 Dibutyl amine, **Mannich** reaction products 112-80-1D,
 Oleic acid, **Mannich** reaction products 123-54-6D,
 2,4-Pentanedione, **Mannich** reaction products 124-07-2D,
 Caprylic acid, **Mannich** reaction products 143-28-2D,
 Oleyl alcohol, **Mannich** reaction products 1330-20-7D,
 Xylene, **Mannich** reaction products 2055-46-1D,
 Hexahydropyrimidine-2-thione, **Mannich** reaction products
 8000-54-2D, Armid o, **Mannich** reaction products
 12125-02-9D, Ammonium chloride, **Mannich** reaction products
 31799-71-0D, Ethomid O 17, **Mannich** reaction products
 100224-74-6D, Guanidine carbonate, **Mannich** reaction
 products

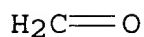
(corrosion inhibitors, for antimony-contg. aq. hydrochloric
 acid-based acidizing compns., for petroleum wells)

L62 ANSWER 3 OF 20 HCAPLUS COPYRIGHT 2002 ACS

1990:615212 Document No. 113:215212 Middle distillate fuel
 having improved storage stability. Bostick, John Gray; Cunningham,
 Larry John; Hanlon, John Vincent (Ethyl Petroleum Additives, Inc.,
 USA). Eur. Pat. Appl. EP 385633 A1 19900905, 16 pp. DESIGNATED
 STATES: R: BE, DE, ES, FR, GB, IT, NL. (English). CODEN: EPXXDW.
 APPLICATION: EP 1990-301791 19900220. PRIORITY: US 1989-318748

19890302.

- AB A **fuel** additive conc. comprises a mixt. of N,N-dimethylcyclohexylamine, a metal deactivator (e.g., N,N'-disalicylidene-1,2-propylenediamine) and a **Mannich** base which is the reaction product of an **aldehyde** (e.g., **HCHO**), a primary or secondary amine, and a hindered or p-**alkylphenol**. A such **Mannich** base is the reaction product of **HCHO**, 1,3-diaminopropane and 2,6-di-t-butylphenol.
- IT 50-00-0D, **Formaldehyde**, **Mannich** products with amines and p-**alkylphenol** or hindered **phenol**
124-40-3D, Dimethylamine, **Mannich** products with **formaldehyde** and hindered or p-alkylphenyl
(stabilizers contg., and N,N-dimethylcyclohexylamine, for middle distillate **fuels**)
- RN 50-00-0 HCAPLUS
- CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

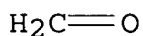


- RN 124-40-3 HCAPLUS
- CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



- IC ICM C10L001-22
ICS C10L001-14
- CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
- ST middle distillate **fuel** stabilizer additive;
Mannich base middle distillate stabilizer;
formaldehyde amine **phenol** **Mannich** stabilizer; **aldehyde** amine **phenol** **Mannich** stabilizer; dimethylcyclohexylamine distillate **fuel** storage stabilizer; metal deactivator distillate **fuel** stabilizer
- IT **Mannich** bases
(**formaldehyde**-amines-hindered or p-**alkylphenol**, stabilizers contg. N,N-dimethylcyclohexylamine and, for middle distillate **fuels**)
- IT **Fuels**, diesel
(stabilizers for, contg. N,N-dimethylcyclohexylamine and **Mannich** bases)
- IT Amines, compounds
(C11-14-tert-alkyl, reaction products, with **formaldehyde** and di-t-butylphenol, stabilizers contg., and N,N-dimethylcyclohexylamine, for middle distillate **fuels**)
- IT **Fuel** oil additives

- (stabilizers, contg. N,N-dimethylcyclohexylamine and **Mannich** bases)
- IT 94-91-7, N,N'-Disalicylidene-1,2-propylenediamine
(metal deactivator, with N,N-dimethylcyclohexylamine and **Mannich** bases, for improved storage stability of middle distillate **fuels**)
- IT 98-94-2, N,N-Dimethylcyclohexylamine
(stabilizers contg., and **Mannich** bases, for middle distillate **fuels**)
- IT 50-00-0D, **Formaldehyde**, **Mannich** products with amines and p-alkylphenol or hindered phenol
78-90-0D, 1,2-Diaminopropane, **Mannich** products with **formaldehyde** and hindered or p-alkylphenyl 104-43-8D, P-Dodecylphenol, **Mannich** products with **formaldehyde** and amines 109-55-7D, N,N-Dimethyl-1,3-diaminopropane, **Mannich** products with **formaldehyde** and hindered or p-alkylphenyl 109-76-2D, 1,3-Diaminopropane, **Mannich** products with **formaldehyde** and hindered or p-alkylphenyl 124-40-3D, Dimethylamine, **Mannich** products with **formaldehyde** and hindered or p-alkylphenyl 128-39-2D, 2,6-Di-t-butylphenol, **Mannich** products with **formaldehyde** and amines
(stabilizers contg., and N,N-dimethylcyclohexylamine, for middle distillate **fuels**)
- L62 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2002 ACS
1990:534078 Document No. 113:134078 Synthesis of 3,5-di-tert-butyl-4-hydroxybenzylphosphonic diethyl ester. He, Qizhang; Yao, Ruoying (Yangzhou Med. Coll., Yangzhou, Peop. Rep. China). Huaxue Shijie, 31(1), 16-18 (Chinese) 1990. CODEN: HUAKAB. ISSN: 0367-6358.
- AB Di-Et (3,5-di-tert-butyl-4-hydroxy)benzylphosphonate (I) was prepd. by **Mannich** reaction of 2,6-di-tert-butylphenol, **HCHO**, and Me₂NH to give N,N-dimethyl-3,5-di-tert-butyl-4-hydroxybenzylamine which was then treated with di-Et phosphonate. I was useful as an **antioxidant** for polyester, polyacrylamide, and vinyon fibers.
- IT 50-00-0, **Formaldehyde**, reactions
(reaction of, with di-tert-butylphenol and dimethylamine)
- RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- IT 124-40-3, reactions
(reaction of, with di-tert-butylphenol and **formaldehyde**)
- RN 124-40-3 HCAPLUS
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



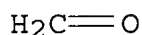
- CC 40-9 (Textiles and Fibers)
Section cross-reference(s): 29
- ST diethyl dibutylhydroxybenzylphosphonate prepn **antioxidant**;
polyester fiber **antioxidant** diethyl
dibutylhydroxybenzylphosphonate; polyacrylamide fiber
antioxidant diethyl dibutylhydroxybenzylphosphonate; vinyon
fiber **antioxidant** diethyl dibutylhydroxybenzylphosphonate
- IT Polyester fibers, uses and miscellaneous
Vinyon fibers
(**antioxidants** for, di-Et (di-tert-
butylhydroxy)benzylphosphonate as)
- IT **Antioxidants**
(di-Et (di-tert-butylhydroxy)benzylphosphonate, for polymeric
fibers)
- IT Synthetic fibers, polymeric
(acrylamide, **antioxidants** for, di-Et
(di-tert-butylhydroxy)benzylphosphonate as)
- IT 976-56-7P, Diethyl (3,5-di-tert-butyl-4-hydroxy)benzylphosphonate
(prepn. of, as **antioxidants** for polymeric fibers)
- IT 50-00-0, **Formaldehyde**, reactions
(reaction of, with di-tert-butylphenol and
dimethylamine)
- IT 124-40-3, reactions
(reaction of, with di-tert-butylphenol and
formaldehyde)
- IT 128-39-2
(reaction of, with **formaldehyde** and dimethylamine)
- IT 9002-86-2
(vinyon fibers, **antioxidants** for, di-Et
(di-tert-butylhydroxy)benzylphosphonate as)
- L62 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2002 ACS
- 1989:576313 Document No. 111:176313 Thermosetting compositions for
cathodic electrodeposition coating. Schupp, Hans; Schwerzel, Thomas;
Lawrenz, Dirk; Osowski, Hans Josef; Heimann, Ulrich (BASF Lacke und
Farben A.-G., Fed. Rep. Ger.). Ger. Offen. DE 3741161 A1 19890615,
6 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1987-3741161
19871204.
- AB The title compns., giving coatings with good adhesion, contain
aminated polymers sol. in aq. acids, crosslinking agents, and
0.05-10.0% low-mol. wt. org. complexing agents. An aq. coating bath
(1 kg) contg. 137 g 70:30 mixt. of a reaction product (amine no. 105
mg KOH/g) of **bisphenol A** epoxy resin, MeNHCH₂CH₂OH,
1,6-hexanediamine, dimer acids, and linseed-oil fatty acids and a
blocked diisocyanate, 1 phr 2-mercaptobenzothiazole (I), 3.1 g AcOH,
and 139 g TiO₂ pigment paste was coated on sheet metal at pH 7.4 and
250 V for 2 min and baked 20 min at 160.degree. to give a 18-.mu.m
film and undercutting in salt-spray corrosion testing on untreated

metal (480 h) 1.3 mm and an phosphated metal (1000 h) 0.16 mm; vs. 22, 4.85, and 0.35, resp., in the absence of I.

IT 50-00-0D, **Formaldehyde**, reaction products with **bisphenol A**, **bisphenol A** diglycidyl ether, and dibutylamine 111-92-2D, Dibutylamine, reaction products with **formaldehyde**, **bisphenol A**, and **bisphenol A** diglycidyl ether (crosslinking agents, for cathodic electrophoretic coatings)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



IC ICM C09D005-44
ICS C09D003-48; C09D005-02

ICA C09D007-00; C09D003-58; C09D003-80; C09D003-72; C09D003-50

CC 42-7 (Coatings, Inks, and Related Products)

ST electrophoretic coating cathodic; mercaptobenzothiazole coating electrophoretic; complexing agent coating electrophoretic; epoxy resin aminated coating; **anticorrosive** coating electrophoretic

IT Crosslinking agents
(**Mannich** bases and blocked by isocyanates, for cathodic electrophoretic coatings)

IT **Mannich** bases
(crosslinking agents, for cathodic electrophoretic coatings)

IT Coating materials
(**anticorrosive**, electrophoretic, cathodic, contg. aminated epoxy resins and complexing agents, for good adhesion)

IT 50-00-0D, **Formaldehyde**, reaction products with **bisphenol A**, **bisphenol A** diglycidyl ether, and dibutylamine 77-99-6D, reaction products with isophorone diisocyanate 80-05-7D, reaction products with **bisphenol A** diglycidyl ether, **formaldehyde**, and dibutylamine 111-92-2D, Dibutylamine, reaction products with **formaldehyde**, **bisphenol A**, and **bisphenol A** diglycidyl ether 1675-54-3D, reaction products with **bisphenol A**, **formaldehyde**, and dibutylamine 4098-71-9D, reaction products with polyols 50586-59-9D, reaction products with isophorone diisocyanate (crosslinking agents, for cathodic electrophoretic coatings)

1989:480020 Document No. 111:80020 Binders for cathodic electrodeposit coatings. Lawrenz, Dirk; Schupp, Eberhard; Schwerzel, Thomas (BASF Lacke und Farben A.-G., Fed. Rep. Ger.). Eur. Pat. Appl. EP 304854 A2 19890301, 9 pp. DESIGNATED STATES: R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE. (German). CODEN: EPXXDW. APPLICATION: EP 1988-113660 19880823. PRIORITY: DE 1987-3728762 19870828.

AB The title binders, giving good curing at low baking temps., contain 50-95% polymer (mol. wt. 200-20,000) bearing primary and/or secondary OH groups and amino groups (amine no. 30-150) and 5-50% mixt. of blocked polyisocyanates and/or urea resins and **Mannich** bases from **polyphenols**, **HCHO** or **HCHO** donors, and secondary aliph. amines. A condensate (amine no. 233) was prepd. from 1,6-hexanediamine 12,400, dimer acids 18,660, and linseed-oil fatty acids 3000 g and condensed (662 g) with 566 g iso-BuCOMe to give a product (I) with amine no. 134. Heating **bisphenol A** diglycidyl ether 752, **bisphenol A** 205, phenoxypropanol 50, Ph3P 0.3, 25% I soln. 598, and EtNHCH2CH2OH 72 g and diln. gave a 70% binder soln. A mixt. of 70% (based on solids) this soln. and 30% mixt. of 14.7 parts urea resin (from trimethylolpropane 134, urea 366, Bu2NH 1548, and 1,6-hexanediamine 348 g) and 38.5 parts **Mannich** base (from **bisphenol A** diglycidyl ether 63, **bisphenol A** 152, Bu2NH 129, and **paraformaldehyde** 31.5 g) was dild. to 35% solids with aq. AcOH and coated on sheet metal at 350 V and pH 7.1 to give a cured 16-.mu.m film with good corrosion resistance.

IT **50-00-0D, Formaldehyde**, reaction products with dibutylamine, **bisphenol A**, aminated epoxy resins, and polyamine Schiff bases **111-92-2D**, Dibutylamine, reaction products with urea, trimethylolpropane, epoxy resins, polyamine Schiff bases, and **Mannich** bases (coatings, electrophoretic, **anticorrosive**)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

$\text{H}_2\text{C}=\text{O}$

RN 111-92-2 HCAPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

n-Bu-NH-Bu-n

IC ICM C09D005-44

CC 42-7 (Coatings, Inks, and Related Products)

ST electrophoretic coating **anticorrosive**; amine epoxy resin coating; **Mannich** base coating electrophoretic; urea resin crosslinker coating

IT Crosslinking agents (blocked polyisocyanates and urea resins, for electrophoretic

- IT **anticorrosive** coatings)
- IT **Mannich** bases
(reaction products with aminated epoxy resins, blocked polyisocyanates, and polyamine Schiff bases, in electrophoretic **anticorrosive** coatings)
- IT Coating materials
(**anticorrosive**, electrophoretic, aminated epoxy resin-**Mannich** base reaction products for)
- IT Fatty acids, compounds
(linseed-oil, reaction products, with hexanediamine and dimer acids, in electrophoretic **anticorrosive** coatings)
- IT Fatty acids, polymers
(unsatd., dimers, reaction products, with hexanediamine and linseed-oil fatty acids, in electrophoretic **anticorrosive** coatings)
- IT **50-00-0D, Formaldehyde**, reaction products with dibutylamine, **bisphenol A**, aminated epoxy resins, and polyamine Schiff bases 57-13-6D, Urea, polymers, uses and miscellaneous 77-99-6D, reaction products with urea, amines, epoxy resins, polyamine Schiff bases, and **Mannich** bases 80-05-7D, reaction products with epoxy resins, **formaldehyde**, dibutylamine, and polyamine Schiff bases 108-10-1D, reaction products with diamine-fatty acid condensates, aminated epoxy resins, blocked polyisocyanates, and **Mannich** bases 110-73-6D, 2-(Ethylamino)ethanol, reaction products with epoxy resins, polyamine Schiff bases, blocked polyisocyanates, and **Mannich** bases 111-92-2D, Dibutylamine, reaction products with urea, trimethylolpropane, epoxy resins, polyamine Schiff bases, and **Mannich** bases 124-09-4D, 1,6-Hexanediamine, reaction products with fatty acids, ketones, aminated epoxy resins, blocked polyisocyanates, and **Mannich** bases 4035-89-6D, 1,3,5-Tris(6-isocyanatohexyl)biuret, reaction products with dibutylamine, aminated epoxy resins, polyamine Schiff bases, and **Mannich** bases 25068-38-6D, reaction products with polyamine Schiff bases, blocked polyisocyanates, and **Mannich** bases
(coatings, electrophoretic, **anticorrosive**)

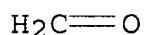
L62 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2002 ACS

1989:410089 Document No. 111:10089 Amine compatibility aids in **lubricating** oil compositions. Emert, Jacob; Waddoups, Malcolm (Exxon Chemical Patents, Inc., USA). Eur. Pat. Appl. EP 294045 A2 19881207, 20 pp. DESIGNATED STATES: R: BE, DE, FR, GB, IT, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1988-304280 19880511. PRIORITY: US 1987-48722 19870511.

AB Amine compatibility aids in **lubricating** oil compns. contg. Cu **antioxidants**, high mol.-wt. dispersants, high total base-no. detergents, and various **antiwear**-friction modifier materials are of the general formula R_1R_2NH , where R_1 and R_2 are independently H or C4-20 hydrocarbyl groups selected from (un)substituted alkyl, alkenyl, aryl, aralkyl, alkaryl or cycloalkyl group, and R_1 and R_2 are not both H and together contain >8 C atoms.

These amines may, in some cases, replace at least a portion of previously used compatibility aids and **antioxidants**. Thus, an additive package conc. was formulated contg. cupric oleate 1.5, di(nonylphenyl) amine 1.3, and diluent oil (contg. dispersant, overbased sulfonate, detergent, Zn dialkyldithiophosphate, nonylphenyl sulfide) 97.2 wt.%, and then mixed with **lubricating** oils to yield .apprx.0.1 wt.% amine in the finished compn. The formulation was subjected to an accelerated stability test, resulting in improved storage stability, e.g., 68 days and 33 days to appearance of haze or sediment at 54.degree. and 66.degree., resp.

IT 50-00-0, **Formaldehyde**, uses and miscellaneous
(ashless dispersants, **lubricating** oils contg., amine
compatibility aids in)
RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 112-99-2, Dioctadecylamine 143-16-8, Dihexylamine
(compatibility aid, **lubricating** oils contg.)
RN 112-99-2 HCAPLUS
CN 1-Octadecanamine, N-octadecyl- (9CI) (CA INDEX NAME)



RN 143-16-8 HCAPLUS
CN 1-Hexanamine, N-hexyl- (9CI) (CA INDEX NAME)

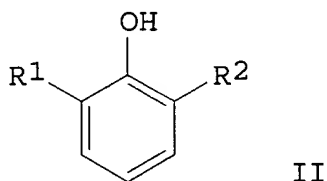
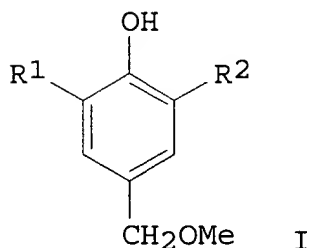


IC ICM C10M163-00
ICS C10L001-14; C10M141-10
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
ST **lubricating** oil amine compatibility aid;
dinomyphenylamine compatibility aid **lubricating** oil;
antioxidant copper oleate amine aid
IT **Fuel** oil
(compatibility aids for, amines as)
IT **Lubricating** oil additives
(compatibility aids, amines as)
IT Naphthenic acids, compounds
(copper salts, **antioxidant**, for **lubricating**
oils contg. amine compatibility aids)
IT Amines, uses and miscellaneous
(secondary, compatibility aids, for **lubricating** and

- fuel oils)**
- IT 10402-16-1, Copper oleate 19179-44-3, Copper laurate
(**antioxidant**, for **lubricating** oils contg.
amine compatibility aids)
- IT 15834-33-0D, Phosphorodithioic acid, dialkyl esters, zinc salts
(**antiwear** additive, for **lubricating** oils
contg. amine compatibility aids)
- IT **50-00-0, Formaldehyde**, uses and miscellaneous
108-95-2D, **Phenol**, derivs., **Mannich** reaction
products with **formaldehyde** and polyalkylenepolyamines
123-56-8D, 2,5-Pyrrolidinedione, polyisobutenyl derivs.
(ashless dispersants, **lubricating** oils contg., amine
compatibility aids in)
- IT **112-99-2, Dioctadecylamine 143-16-8, Dihexylamine**
36878-20-3 100041-12-1, Irganox L57 111019-18-2, Vanlube SL
(compatibility aid, **lubricating** oils contg.)
- IT 25496-72-4, Glycerol monooleate
(friction modifier contg., **lubricating** oils contg.,
amine compatibility aids in)
- IT 56358-04-4, Nonylphenyl sulfide
(**lubricating** oils contg., amine compatibility aids in)

L62 ANSWER 8 OF 20 HCAPLUS COPYRIGHT 2002 ACS
1989:57300 Document No. 110:57300 Processes for the preparation of
2,6-dialkyl-4-(methoxymethyl)**phenols** in the production of
antioxidant 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-
hydroxybenzyl)benzene. Mina, George L. (Ethyl Corp., USA). U.S. US
4754077 A 19880628, 7 pp. Cont.-in-part of U.S. Ser. No. 450,207,
abandoned. (English). CODEN: USXXAM. APPLICATION: US 1986-846085
19860331. PRIORITY: US 1982-450207 19821216.

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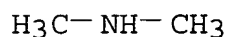
AB Dialkyl(methoxymethyl)**phenols** I (R1, R2 = alkyl) are
prepd. by reaction of **dialkylphenols** II with **HCHO**
and excess MeOH at 50-200.degree. in the presence of a
Mannich base catalyst. A mixt. of 5.4 g
paraformaldehyde, 66 mL MeOH, and 1.35 g 40 wt.% aq. Me2NH
was refluxed and treated with 30.9 g II (R1 = R2 = CMe3) in 15 mL
MeOH over 2 h. The mixt. was stirred at 95.degree. in a sealed
vessel for 2.5 h and evapd. to give 37 g product contg. I (R1 = R2 =

CMe₃) (III) 91.7, 4,4'-methylenebis(2,6-di-tert-butylphenol) 3.2, starting phenol 0.3, methoxymethoxymethyl homolog 2.0, and others 1.4%. In contrast, a prior method using NaOH instead of Me₂NH gave resp. values of 30.2, 44.8, 0, 0, and 21.8%. Reaction of III with mesitylene in CH₂Cl₂-AcOH-H₂SO₄ gave the title **antioxidant** in good yield and >99% purity.

IT 124-40-3, Dimethylamine, reactions
(Mannich reaction of, with formaldehyde and dialkylphenols)

RN 124-40-3 HCAPLUS

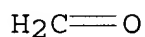
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IT 50-00-0, Formaldehyde, reactions
(condensation of, with methanol and dialkylphenols)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IC ICM C07C045-00

NCL 568662000

CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

ST alkylmethoxymethylphenol prepn intermediate
antioxidant; phenol dialkylmethoxymethyl prepn
intermediate **antioxidant**

IT **Antioxidants**
(trimethyltris(di-tert-butylhydroxybenzyl)benzene)

IT 124-40-3, Dimethylamine, reactions
(Mannich reaction of, with formaldehyde and dialkylphenols)

IT 88-27-7
(catalyst, for condensation of methanol and formaldehyde
with dialkylphenols)

IT 108-67-8, Mesitylene, reactions
(condensation of, with di-tert-butyl(methoxymethyl)phenol)

IT 67-56-1, Methanol, reactions
(condensation of, with formaldehyde and dialkylphenols)

IT 50-00-0, Formaldehyde, reactions 30525-89-4,
Paraformaldehyde
(condensation of, with methanol and dialkylphenols)

IT 128-39-2, 2,6-Di-tert-butylphenol
(condensation of, with methanol and formaldehyde)

IT 87-97-8P, 2,6-Di-tert-butyl-4-(methoxymethyl)phenol
(prepn. and condensation of, with mesitylene)

IT 1709-70-2P
(prepn. of, as **antioxidant**)

L62 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2002 ACS
1988:440586 Document No. 109:40586 Surfactants from lignin. Naae, Douglas G.; Whittington, Lawrence E.; Ledoux, Will A.; Debons, Francis E. (Texaco Inc., USA). U.S. US 4739040 A 19880419, 16 pp. (English). CODEN: USXXAM. APPLICATION: US 1986-946270 19861224.
AB Surfactants used in a surfactant system to recover oil from underground formations are produced by reducing lignin in the presence of CO or H reducing agent at high temp. and pressure to produce low-mol. wt. lignin **phenols** and subjecting the lignin **phenols** to >1 or a combination of several reactions, e.g., alkoxylation, alkylation, sulfonation, sulfation, alkoxy-sulfation, and sulfomethylation. Thus, sulfated lignin **phenols**, prepd. by reducing kraft lignin or lignosulfonate under CO and/or H₂S at 310-350.degree. and sulfation, were evaluated for their enhanced oil recovery in single surfactant core floods, resulting in <21% of water flood residual oil recovery when used alone as primary surfactants.
IT 50-00-0D, **Formaldehyde**, **Mannich** products with lignin or lignosulfonate and amines, sulfated 143-16-8D, Dihexylamine, **Mannich** reaction products with **formaldehyde** and kraft lignin, sulfated (surfactants, for petroleum recovery)
RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

H₂C=O

RN 143-16-8 HCAPLUS
CN 1-Hexanamine, N-hexyl- (9CI) (CA INDEX NAME)

Me- (CH₂)₅-NH- (CH₂)₅-Me

IC ICM C08H005-02
ICS C07C043-115
NCL 530503000
CC 51-2 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 43, 46
IT **Fuel** gases
(synthesis gas, reducing agent, for prepn. of lignin surfactants, for petroleum recovery)
IT 7790-94-5, Chlorosulfonic acid 63147-26-2, Trimethylamine-sulfur trioxide complex
(sulfating agent, for lignin **phenols**, in prepn. of surfactants for petroleum recovery)
IT 7446-11-9, Sulfur trioxide, uses and miscellaneous 7664-93-9,

Sulfuric acid, uses and miscellaneous 35346-47-5, Sulfur trioxide-dioxane complex

(sulfonating agent, for lignin **phenols**, in prepn. of surfactants for petroleum recovery)

- IT 50-00-0D, **Formaldehyde**, **Mannich** products with lignin or lignosulfonate and amines, sulfated 143-16-8D, Dihexylamine, **Mannich** reaction products with **formaldehyde** and kraft lignin, sulfated 8061-51-6D, Lignosite 458, reduced, (alkoxy)sulfated or sulfonated or propoxylated/ethoxylated, or alkylated or sulfomethylated 8062-15-5D, Lignosulfonic acid, salts, **Mannich** reaction products with N-ethylbenzylamine, and **formaldehyde**, sulfated 8068-05-1D, Indulin AT, reduced, (alkoxy)sulfated or sulfonated or propoxylated/ethoxylated, or alkylated or sulfomethylated 8075-67-0D, Indulin C, reduced, (alkoxy)sulfated or sulfonated or propoxylated/ethoxylated, or alkylated or sulfomethylated 9041-76-3D, Lignosite, reduced, (alkoxy)sulfated or sulfonated or propoxylated/ethoxylated, or alkylated or sulfomethylated 14321-27-8D, N-Ethylbenzylamine, **Mannich** products with **formaldehyde** and lignosulfonates, sulfated (surfactants, for petroleum recovery)

L62 ANSWER 10 OF 20 HCAPLUS COPYRIGHT 2002 ACS

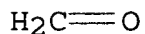
1988:153469 Document No. 108:153469 **Phenolic**-containing **Mannich** base reaction products and lubricant compositions containing same. Chibnik, Sheldon (Mobil Oil Corp., USA). U.S. US 4717492 A 19880105, 5 pp. (English). CODEN: USXXAM. APPLICATION: US 1985-813813 19851227.

- AB **Antioxidants** for lubricating oils or greases are reaction products made by reacting a preformed **Mannich** base with reactive hydrocarbyl amines contg. >1 reactive H at 1-2:1 base-amine molar ratio and from ambient to .apprx.250.degree.; the **Mannich** base is prepd. from (1) a **phenol**, (2) a C1-8 alkyl **aldehyde**, and (3) an amine having a lower b.p. than that of the reactive amine. Thus, a solvent refined **paraffinic** neutral oil blended with 1% reaction products of PhNH₂ and Ethyl 703 were evaluated for **antioxidn.** characteristics at 325.degree.F for 40 h, resulting in viscosity change 18.1%, vs. 334% for a control oil.

- IT 50-00-0D, **Mannich** reaction products with amines, and **phenols**, reaction products with hydrocarbylamines 109-89-7D, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 110-68-9D, Methylbutylamine, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 110-96-3D, Diisobutylamine, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 111-92-2D, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 124-40-3D, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines (antioxidants, for lubricating oils or

greases)

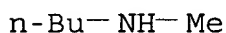
RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCAPLUS
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 110-68-9 HCAPLUS
 CN 1-Butanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 110-96-3 HCAPLUS
 CN 1-Propanamine, 2-methyl-N-(2-methylpropyl)- (9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC ICM C10M129-10
 NCL 252051500R
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 ST antioxidant lubricant Mannich base
 amine; lubricating oil antioxidant
 Mannich amine; grease lubricating
 antioxidant Mannich amine; aniline Mannich
 base product antioxidant
 IT Mannich bases

- (reaction products with amines, **antioxidants**, for lubricating oils or greases)
- IT **Lubricating grease additives**
Lubricating oil additives
 (antioxidants, Mannich base-hydrocarbyl amine reaction products)
- IT 50-00-0D, Mannich reaction products with amines, and **phenols**, reaction products with hydrocarbylamines 62-53-3D, reaction products with Mannich base 88-27-7D, Ethyl 703, reaction products with hydrocarbyl amines 90-30-2D, N-Phenyl-.alpha.-naphthylamine, reaction products with Mannich base 95-14-7D, Benzotriazole, reaction products with Mannich base 100-61-8D, reaction products with Mannich base 101-77-9D, reaction products with Mannich base 106-50-3D, reaction products with Mannich base 108-95-2D, C18-C24+ alkylated dibutylaminomethyl derivs., reaction products with hydrocarbylamines 109-89-7D, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 110-68-9D, Methylbutylamine, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 110-96-3D, Diisobutylamine, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 110-97-4D, Diisopropanolamine, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 111-92-2D, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 124-40-3D, reaction products with C1-7-alkylaldehydes, **phenols**, and hydrocarbylamines 302-01-2D, reaction products with Mannich base 1072-71-5D, 2,5-Dimercapto-1,3,4-thiadiazole, reaction products with Mannich base 5285-60-9D, 4,4'-Bis-(sec-butylamino)diphenylmethane, reaction products with Mannich base 28675-17-4D, Dodecylaniline, reaction products with Mannich base 29385-43-1D, reaction products with Mannich base 113754-92-0D, reaction products with Mannich base (antioxidants, for lubricating oils or greases)

L62 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2002 ACS

1986:35608 Document No. 104:35608 Cathodically depositable electrodiplacquer binder. Paar, Willimald; Gmoser, Johann; Hoenig, Helmut (Vianova Kunstharz A.-G., Austria). Austrian AT 3708537 B 19850826, 8 pp. (German). CODEN: AUXXAK. APPLICATION: AT 1984-884 19840316.

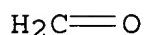
AB The title binders, giving **anticorrosive** films curable at 150-160.degree., are prep'd. by the reaction of epoxy resins (epoxy equiv. 180-1000) with 0.6-1 mol primary amine/epoxy group, 0.5-1 mol **ph nol**/NH group, and 0.6-0.8 mol **HCHO** per reactive site on the **phenol** at 50-90.degree. in aprotic solvents. Thus, heating 351.5 parts soln. (0.8 mol NH) adduct of 190 parts (1

equiv.) **bisphenol A** epoxy resin with 59 parts Et₂N(CH₂)₃NH₂ and 58 parts 2-ethylhexylamine with 182 parts **bisphenol A** and 75.8 parts 91% **paraformaldehyde** at 80.degree. until the free **HCHO** content was <0.3% gave a binder compn. with amine no. 135 mg KOH/g, requiring 50 mmol AcOH/100 g (20.7% neutralization) to give a 38%-solids dispersion. An 18%-solids, pigmented dispersion of this binder was cathodically coated to 18-22 .mu. (dry basis) on Zn-phosphated steel and baked 30 min at 160.degree. to give a film with salt-spray corrosion <2 mm in 700 h.

IT 50-00-0D, reaction products with **phenols** and aminated epoxy resins 109-89-7D, reaction products with epoxy resins, **Mannich** base derivs.
(binders, for cathodic electrophoretic coatings)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM C09D005-44

CC 42-7 (Coatings, Inks, and Related Products)

ST electrophoretic coating cathodic binder; corrosion resistance electrodiap coating; **Mannich** base binder coating; **bisphenol A** resin coating; ethylhexylamine adduct coating; diethylpropanediamine adduct coating; aminated epoxy resin coating

IT **Mannich** bases
(epoxy resin derivs., binders for cathodic electrophoretic coatings)

IT Coating materials
(**anticorrosive**, cathodic, electrophoretic, binders for, epoxy resin **Mannich** base derivs. as)

IT 50-00-0D, reaction products with **phenols** and aminated epoxy resins 80-05-7D, reaction products with **formaldehyde** and aminated epoxy resins 104-75-6D, reaction products with epoxy resins, **Mannich** base derivs. 104-78-9D, reaction products with epoxy resins, **Mannich** base derivs. 108-95-2D, reaction products with **formaldehyde** and aminated epoxy resins 109-73-9D, reaction products with epoxy resins, **Mannich** base derivs. 124-09-4D, reaction products with epoxy resins, **Mannich** base derivs. 9072-62-2D, aminated, **Mannich** base derivs. 25068-38-6D, aminated,

Mannich base derivs.

(binders, for cathodic electrophoretic coatings)

L62 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2002 ACS

1983:162538 Document No. 98:162538 Cathodic electrodipl coatings.

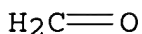
Gulbins, Erich; Haardt, Axel; Sabelus, Guenther (BASF A.-G. , Fed. Rep. Ger.). Ger. DE 3210540 C1 19830127, 9 pp. (German). CODEN: GWXXAW. APPLICATION: DE 1982-3210540 19820323.

AB The title coatings, providing corrosion protection without phosphation, contain aminated polymers and S and/or dithiocarbamates. Thus, a mixt. of 70% binder soln. (prepd. from **bisphenol** A, diethnaolamine, (MeOCH₂CH₂)₂NH, **HCHO**, **bisphenol** A epoxy resin, and pentaerythritol epoxy resin, mol. wt. 860) 222.0, AcOH 2.8, tetramethylthiuram disulfide (I) [137-26-8] 3.7, talc 48.0, carbon black 9.8, C10-14 fatty alc. 30.0, and H₂O 100.0 parts was dild. with H₂O to 12% solids (pH 8.2), coated on degreased steel at 190 V and 30.degree. for 2 min, rinsed, and baked 20 min at 190.degree. to give a 18-.mu. film with salt-spray corrosion (168 h) 5 mm, compared with >10 without I.

IT 50-00-0D, reaction products with **bisphenol** A, amines and epoxy resins 111-92-2D, reaction products with **bisphenol** A, **formaldehyde** and epoxy resins (coatings, electrophoretic and **anticorrosive**)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



IC C09D005-40; C09D005-08; C25D013-04; C25D013-10

CC 42-7 (Coatings, Inks, and Related Products)

ST electrophoretic coating cathodic; **anticorrosive** coating electrophoretic; **Mannich** base coating electrophoretic; thiuram disulfide coating electrophoretic; epoxy resin condensate coating; diethanolamine condensate coating; pentaerythritol epoxy resin coating

IT Coating materials

(**anticorrosive**, aminated epoxy resins and thiuram derivs., as electrophoretic cathodic)

IT Coating materials

(**anticorrosive**, cathodic, electrophoretic, aminated epoxy resins and thiuram derivs.)

IT 50-00-0D, reaction products with **bisphenol** A, amines and epoxy resins 79-06-1D, reaction products with

phenolic indene resins, **formald hyde** and diethanolamine 80-05-7D, reaction products with diethanolamine, **formaldehyde** and epoxy resins 104-76-7D, esters with TDI, reaction products with epoxy resins and diethanolamine 111-42-2D, reaction products with **bisphenol A**, **formaldehyde** and epoxy resins 111-92-2D, reaction products with **bisphenol A**, **formaldehyde** and epoxy resins 111-95-5D, reaction products with **bisphenol A**, **formaldehyde** and epoxy resins 25068-38-6D, reaction products with **bisphenol A**, amines and **formaldehyde** 26471-62-5D, ethylhexyl esters, reaction products with epoxy resins and diethanolamine 30973-88-7D, reaction products with **bisphenol A**, amines and **formaldehyde** (coatings, electrophoretic and **anticorrosive**)

IT 102-77-2 137-26-8 142-71-2 7704-34-9, uses and miscellaneous (in electrophoretic coatings, cathodic and **anticorrosive**)

L62 ANSWER 13 OF 20 HCAPLUS COPYRIGHT 2002 ACS
 1983:108972 Document No. 98:108972 Polyaddition-polycondensation product containing basic nitrogen groups and its use. Kempter, Fritz Erdmann; Schupp, Eberhard (BASF A.-G. , Fed. Rep. Ger.). Ger. Offen. DE 3124089 A1 19830105, 29 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1981-3124089 19810619.

AB Binders for electrophoretic coatings are prep'd. by addn. of **Mannich** bases (from **phenols**, secondary alkanolamines, and **HCHO**) to epoxy resins, and contain [3-(dialkylamino)propionamido]methyl groups bonded to arom. rings. Thus, a 67% soln. of 210:500 4-vinylcyclohexane diepoxide-**bisphenol** condensate 434.3, acrylamide 136.5, **paraformaldehyde** (I) 79.7, p-tert-BuC6H4OH 91, and **bisphenol A** 78 parts were condensed in the presence of BF3.Et2O and then with 202 parts diethanolamine (II), and a 58.9% soln. of this product 288.1, **bisphenol A** 125, I 33.5, II 37.5, Bu2NH 40, dihexylamine 50, **bisphenol A** diglycidyl ether 137.3, and pentaerythritol triglycidyl ether 54.7 parts were condensed at 70-80.degree.. A 74.1% soln. of this product (100 parts), 80 ppm Cu [as Cu(OAc)2], 1 part Co-Soligen (8% Co), and 1.8% AcOH were dild. with H2O to 1000 parts (pH 7.4, elec. cond. 1180 .mu.S/cm), mixed with 10 parts isodecanol, coated on steel at 85 V and 30.degree. for 2 min, and baked 20 min at 180.degree. to give a 14-16 .mu. coating with Erichsen indentation 8.9 mm.

IT 50-00-0D, reaction products with amines, **phenols** and epoxy resins 111-92-2D, reaction products with **phenols**, **formaldehyde** and epoxy resins 143-16-8D, reaction products with **phenols**, **formaldehyde** and epoxy resins (coatings, electrophoretic cathodic)

RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 143-16-8 HCAPLUS
 CN 1-Hexanamine, N-hexyl- (9CI) (CA INDEX NAME)



IC C08G059-50; C08G014-06; C09D003-58; C09D005-02; C09D005-40;
 C25D013-06
 CC 42-7 (Coatings, Inks, and Related Products)
 ST epoxy coating **anticorrosive** waterborne; **Mannich**
 base epoxy coating; aminopropionamide deriv coating; diethanolamine
 condensate coating; pentaerythritol glycidyl ether coating; glycidyl
 ether polyol coating
 IT **Phenols**, compounds
 (reaction products with amines, **formaldehyde** and epoxy
 resins, in cathodic electrophoretic coatings)
 IT **Mannich** bases
 (reaction products with epoxy resins, in cathodic electrophoretic
 coatings)
 IT Amines, compounds
 (reaction products with **formaldehyde**, **phenols**
 and epoxy resins, in electrophoretic cathodic coatings)
 IT Coating materials
 (**anticorrosive**, electrophoretic, **Mannich**
 base-epoxy resin condensates for cathodic)
 IT Coating materials
 (cathodic, **Mannich** base-epoxy resin condensates for)
 IT Coating materials
 (electrophoretic, **Mannich** base-epoxy resin condensates
 for)
 IT 50-00-0D, reaction products with amines, **phenols**
 and epoxy resins 79-06-1D, reaction products with
formaldehyde, **phenols** and aminated epoxy resins
 80-05-7D, reaction products with **formaldehyde**, amines and
phenolic resins 98-54-4D, reaction products with
formaldehyde, amines and **phenolic** resins
 106-87-6D, reaction products with **phenols**,
formaldehyde and amines 108-95-2D, reaction products with
formaldehyde, amines and **phenolic** resins
 111-42-2D, reaction products with **phenols**,
formaldehyde and epoxy resins 111-92-2D, reaction

products with **phenols**, **formaldehyde** and epoxy resins 143-16-8D, reaction products with **phenols**, **formaldehyde** and epoxy resins 1675-54-3D, reaction products with **phenols**, **formaldehyde** and amines 13236-00-5D, reaction products with **phenols**, **formaldehyde** and amines (coatings, electrophoretic cathodic)

L62 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2002 ACS
 1982:530420 Document No. 97:130420 Transamination for **Mannich** products. Basalay, Robert J.; Udelhofen, John H. (Standard Oil Co. (Indiana), USA). U.S. US 4334085 A 19820608, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1978-942187 19780914.
 AB A transamination of a **Mannich** condensation product (prepd. from a polybutyl- or **polybutenylphenol**, **HCHO** [50-00-0], and Et₂NH [109-89-7] or hexamethylenetetramine (I) [100-97-0] with a polyamine yields oxidn.-resistant and nonvarnish-forming **lubricating** oil sludge dispersants. Prepn. of the additives, which can also be acid-catalyzed, includes a final stripping at 155.degree. with N to remove all volatile material, esp. **HCHO**. Thus, a **lubricating** oil formulation contg. a compd. prepd. by sulfonic acid-catalyzed 1-step reaction of **polybutylphenol**, **HCHO**, I, and tetraethylenepentamine [112-57-2], had good oxidn. and varnishing resistance and sludge dispersancy, compared with an oil contg. a conventional **Mannich** condensation product.
 IT 50-00-0D, reaction products with **phenols**, amines, and polyamines 109-89-7D, reaction products with **phenols**, **formaldehyde**, and polyamines (lubricating oil dispersants-varnish inhibitors contg.)
 RN 50-00-0 HCAPLUS
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

$\text{H}_2\text{C}=\text{O}$

RN 109-89-7 HCAPLUS
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

$\text{H}_3\text{C}-\text{CH}_2-\text{NH}-\text{CH}_2-\text{CH}_3$

IC C07C087-28
 NCL 564367000
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products) Section cross-reference(s): 25
 ST **lubricating** oil sludge dispersant; dispersant varnish resistant **lubricating** oil; **phenol** polyamine **Mannich** transamination; hexamethylenetetramine

- phenol Mannich** transamination;
tetraethylenepentamine **phenol Mannich**
transamination
- IT Sulfonic acids, uses and miscellaneous
(catalysts, for transamination of **Mannich** bases, in
manuf. of **lubricating** oil additives)
- IT Transamination
(of **Mannich** condensation products, **lubricating**
oil additives contg.)
- IT **Mannich** bases
(transamination of, in manuf. of **lubricating** oil
additives)
- IT **Mannich** reaction
(transamination products from, **lubricating** oil
additives contg.)
- IT **Lubricating** oil additives
(dispersants-varnish inhibitors, contg. amine-**phenol-**
formaldehyde condensation products)
- IT Amines, compounds
(poly-, reaction products with **phenols**,
formaldehydes, and amines, **lubricating** oil
dispersants-varnish inhibitors contg.)
- IT 64-19-7, uses and miscellaneous
(catalysts, for transamination of **Mannich** bases, in
manuf. of **lubricating** oil additives)
- IT 108-95-2D, alkyl derivs., reaction products with
formaldehyde, amines, and polyamines
(**lubricating** oil dispersant-varnish inhibitor contg.)
- IT 50-00-0D, reaction products with **phenols**, amines,
and polyamines 100-97-0D, reaction products with **phenols**
, **formaldehyde**, and polyamines 109-89-7D,
reaction products with **phenols**, **formaldehyde**,
and polyamines 112-24-3D, reaction products with **phenols**
, **formaldehyde**, and amines 112-57-2D, reaction products
with **phenols**, **formaldehyde**, and amines
7209-38-3D, reaction products with **phenols**,
formaldehyde, and amines
(**lubricating** oil dispersants-varnish inhibitors contg.)

L62 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2002 ACS

1980:569383 Document No. 93:169383 A new class of protective agents
for general purpose rubber vulcanizates. Patel, D. K.; Shah, K. H.;
Krishnan, V. (Dep. Chem. Technol., Univ. Bombay, Bombay, 400 019,
India). Programme Pap. - Rubber Conf., 10th, 127-43. Indian Rubber
Manuf. Res. Assoc.: Thana, India. (English) 1978. CODEN: 43NGAM.

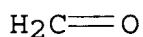
AB **Antioxidants** for rubber were prepd. by the reaction of
phenols [2,6-di-tert-butylphenol, (1-phenylethyl)
phenol, bis(1-phenylethyl)**phenol**] with
HCHO and amines (Me₂NH, Ph₂NH, cyclohexylamine, morpholine).
Evaluation in natural rubber and SBR vulcanizates showed the
products to be much better **antioxidants** than conventional
phenols, with performance approaching that of conventional

amine stabilizers. They were also good antiozonants, their staining behavior was comparable to that of styrenated **phenol**.

IT 50-00-0D, reaction products with **alkylphenols** and amines 124-40-3D, reaction products with **alkylphenols** and **formaldehyde** (**antioxidants**, for rubber)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



CC 38-2 (Elastomers, Including Natural Rubber)
Section cross-reference(s): 25

ST **Mannich** base **antioxidant** rubber; **phenol** aminomethylated **antioxidant**; aminomethylphenol **antioxidant** rubber; SBR **antioxidant** **Mannich** base; natural rubber **antioxidant**; antiozonant rubber **Mannich** base

IT Rubber, butadiene-styrene, uses and miscellaneous
Rubber, natural, uses and miscellaneous
(**antioxidants** for, **phenolic Mannich** bases as)

IT **Mannich** bases
(**antioxidants**, for rubber)

IT **Antioxidants**
Antiozonants
(**phenolic Mannich** bases, for rubber)

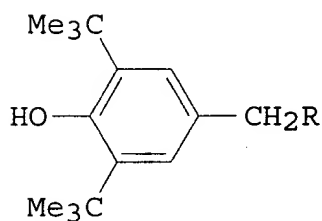
IT **Phenols**, compounds
(reaction products with amines and **formaldehyde**, **antioxidants** for rubber)

IT Amines, compounds
(reaction products with **phenols** and **formaldehyde**, **antioxidants** for rubber)

IT 50-00-0D, reaction products with **alkylphenols** and amines 108-91-8D, reaction products with **alkylphenols** and **formaldehyde** 110-91-8D, reaction products with **alkylphenols** and **formaldehyde** 122-39-4D, reaction products with **alkylphenols** and **formaldehyde** 124-40-3D, reaction products with **alkylphenols** and **formaldehyde** 128-39-2D, reaction products with amine and **formald hyde** 25640-70-4 26857-99-8D, reaction products with amine and **formaldehyde** (**antioxidants**, for rubber)

L62 ANSWER 16 OF 20 HCAPLUS COPYRIGHT 2002 ACS
 1978:615065 Document No. 89:215065 2,6-Di-tert-butyl-4-
methyphenol. (Sterlitamak Experimental-Industrial
 Petrochemical Plant, USSR). Jpn. Kokai Tokkyo Koho JP 53103432
 19780908 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
 1977-15088 19770216.

GI



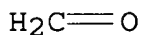
AB The title **phenol** (I; R = H) (II) was prepd. by
Mannich reaction of 2,6-di-tert-butylphenol (III)
 with **HCHO** and Me₂NH followed by hydrogenolysis of the
 resultant benzylamine I (R = NMe₂) (IV). II was useful as an
antioxidant for petroleum products, rubber, and plastics (no
 data). Thus, 205 g 70% III in EtOH was added to 30 g **HCHO**
 and 45 g Me₂NH at 5-8.degree. and the mixt. heated 3 h at 85.degree.
 to give IV, which was treated with equimolar H over Raney Ni at
 120.degree. to give 94.7% II.

IT 50-00-0, reactions

(**Mannich** reaction of, with **dibutylphenol** and
 dimethylamine)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 124-40-3, reactions

(**Mannich** reaction of, with **formaldehyde** and
dibutylphenol)

RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



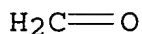
IC C07C039-06

CC 25-10 (Noncondensed Aromatic Compounds)
 Section cross-reference(s): 36, 38

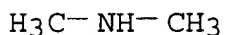
- ST **methyldibutylphenol antioxidant rubber plastic; antioxidant dibutylmethylphenol rubber plastic; phenol dibutyl methyl; Mannich dibutylphenol formaldehyde dimethylamine; butylphenol Mannich formaldehyde dimethylamine**
- IT **Plastics**
Rubber, natural, uses and miscellaneous
Rubber, synthetic
(**antioxidants for, di-tert-butylmethylphenol**)
- IT **Antioxidants**
(**di-tert-butylmethylphenol, for rubber and plastics**)
- IT **50-00-0, reactions**
(**Mannich reaction of, with dibutylphenol and dimethylamine**)
- IT **124-40-3, reactions**
(**Mannich reaction of, with formaldehyde and dibutylphenol**)
- IT **128-39-2**
(**Mannich reaction of, with formaldehyde and dimethylamine**)
- L62 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2002 ACS
1978:600211 Document No. 89:200211 Sulfurized **Mannich** condensation products and **fuel** compositions containing them. Davis, Kirk Emerson (Lubrizol Corp., USA). U.S. US 4090854 19780523, 8 pp. (English). CODEN: USXXAM. APPLICATION: US 1976-656228 19760209.
- AB Sulfurized **Mannich** condensation products of a **phenolic** compd., an **aldehyde**, and an amine are effective as dispersant additives for **lubricating** oils and as **antirust** and dispersant additives for liq. **fuels**. Thus, a mixt. of an alkylated PhOH (798 parts, 3.0 equiv.) having alkyl groups derived from propylene tetramer, a 25% aq. soln. of Me₂NH (588 parts, 3.1 equiv.), and 2-PrOH (500 parts) is added to a 37% aq. **HCHO** soln. (243 parts, 3.0 equiv.) at room temp. The mixt. is heated to 75.degree. over 4 h and then allowed to stand and sep. The aq. layer is removed, and the org. layer is stripped to 120.degree./12 mm and filtered. A mixt. contg. the filtrate (495 parts, 1.5 equiv.), S flowers (96 parts, 3.0 equiv.), and DMF (250 parts) is heated to 167.degree. over 4.75 h, and 51 parts H₂S is recovered in a trap. The reaction mixt. is stripped to 153.degree./8 mm, mixed with 300 parts diluent oil, and filtered to give a 36% oil soln. of the desired sulfurized **Mannich** condensation product, which contains 1.94% N and 5.85% S. A motor **fuel** is made comprising a **gasoline** (10 Reid vapor pressure) contg. 0.5 Et₄Pb/L and 15 ppm of the sulfurized **Mannich** condensation product.
- IT **50-00-0D, Mannich reaction products with alkylphenols and amines, sulfurized 124-40-3D, Mannich reaction products with alkylphenols and formaldehyde, sulfurized**

(additives, for gasoline and lube oils)

RN 50-00-0 HCAPLUS
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C10L001-22
NCL 044073000
CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 25
ST dispersant additive **fuel lubricant**;
gasoline antirust dispersant additive;
lubricating oil dispersant additive; **Mannich**
product sulfurized additive; **phenol deriv Mannich**
product sulfurized; amine **alkylphenol Mannich**
product sulfurized
IT **Gasoline** additives
(corrosion inhibitors-dispersants, sulfurized **Mannich**
condensation products)
IT **Lubricating** oil additives
(dispersants, sulfurized **Mannich** condensation products)
IT 50-00-0D, **Mannich** reaction products with
alkylphenols and amines, sulfurized 106-50-3D,
Mannich reaction products with **alkylphenols** and
formaldehyde, sulfurized 108-95-2D, alkyl derivs.,
Mannich reaction products with amines and
formaldehyde, sulfurized 110-91-8D, **Mannich**
reaction products with **alkylphenols** and
formaldehyde, sulfurized 112-90-3D, **Mannich**
reaction products with **alkylphenols** and
formaldehyde, sulfurized 124-40-3D,
Mannich reaction products with **alkylphenols** and
formaldehyde, sulfurized 4067-16-7D, **Mannich**
reaction products with **alkylphenols** and
formaldehyde, sulfurized 7803-57-8D, **Mannich**
reaction products with **alkylphenols** and
formaldehyde, sulfurized 26746-38-3D, **Mannich**
reaction products with amines and **formaldehyde**, sulfurized
26997-02-4D, **Mannich** reaction products with amines and
formaldehyde, sulfurized 28805-86-9D, **Mannich**
reaction products with amines and **formaldehyde**, sulfurized
31114-86-0D, **Mannich** reaction products with
alkylphenols and **formaldehyde**, sulfurized

57427-55-1D, **Mannich** reaction products with amines and **formaldehyde**, sulfurized
(additives, for **gasoline** and **lube** oils)

L62 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2002 ACS

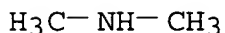
1978:173323 Document No. 88:173323 Sulfurized **Mannich** condensation products. Davis, Kirk Emerson (Lubrizol Corp., USA). S. African ZA 7507576 19770602, 30 pp. (English). CODEN: SFXAB. APPLICATION: ZA 1975-7576 19751202.

AB Sulfurized **Mannich** condensates useful as **lubricating** oil additives to provide sludge-dispensing properties are prepd. by treating the 2-step **Mannich** condensate with S at 185.degree. for 13 h to give a product contg. 2.67% S and 0.6% N. Thus, a mixt. of alkylated **phenols** 1094 was reacted with 91% aq. **paraformaldehyde** [30525-89-4] 66 and p-phenylenediamine 108 parts at 155.degree. for 4 h. The **Mannich** product, contg. 1.33% N was sulfurized to give a final product contg. 1.50% N and 2.11% S. The product served as detergents for **gasoline** and **lubricating** oils.

IT 124-40-3D, reaction products with **formaldehyde** and **butylphenol**, sulfurized
(detergents, for **gasoline** and **lubricating** oil)

RN 124-40-3 HCAPLUS

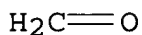
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IT 50-00-0, uses and miscellaneous
(detergents, for **gasoline** and **lubricating** oils)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IC C01B

CC 51-7 (Fossil Fuels, Derivatives, and Related Products)

ST **Mannich** condensate **gasoline** lubricant
detergent

IT **Gasoline** additives

Lubricating oil additives

(detergents, sulfurized **Mannich** compn. products as)

IT 106-50-3D, reaction products with **alkylphenols** and **paraformaldehyde**, sulfurized 108-95-2D, alkyl derivs., reaction products with aldehydes and amines, sulfurized 112-90-3D, reaction products with di-tert-butylphenol and

paraformald hyde, sulfurized 124-40-3D, reaction products with **formaldehyde** and **butylphenol**, sulfurized 4067-16-7D, reaction products with **paraformaldehyde** and **polyisobutenylphenol**, sulfurized 7803-57-8D, reaction products with **paraformaldehyde** and **alkylphenols**, sulfurized 26746-38-3D, reaction products with **oleylamine** and **paraformaldehyde** 30525-89-4D, reaction products with amines and **phenols**, sulfurized 31114-86-0D, reaction products with **heptylphenol** and **paraformaldehyde**, sulfurized

(detergents, for **gasoline** and **lubricating oil**)

IT 50-00-0, uses and miscellaneous
(detergents, for **gasoline** and **lubricating oils**)

L62 ANSWER 19 OF 20 HCAPLUS COPYRIGHT 2002 ACS

1978:155614 Document No. 88:155614 Metal deactivator for **fuels**, **lubricating oils**, and **lubricating oil** components. Woitunik, Dieter; Kuhn, Klaus; Koeppert, Gerhard; Stoeffgen, Rudolf; Wenzel, Bernd (Ger. Dem. Rep.). Ger. (East) DD 126659 19770803, 7 pp. (German). CODEN: GEXXA8. APPLICATION: DD 1976-193063 19760528.

AB A **Mannich** base prepd. from PhOH [108-95-2], **paraformaldehyde** [30525-89-4], and Me₂NH [124-40-3] is a metal deactivator for **fuels** oils at levels of 0.0001-0.5%.

IT 124-40-3D, reaction products with **formaldehyde** and **phenol**

(metal deactivators, for **lubricating oils**)

RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C10M001-32

CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 25

ST **Mannich** metal deactivator **lubricant**;
fuel metal deactivator **Mannich**; **phenol**
Mannich lubricant

IT **Mannich** bases
(**lubricating oil** metal deactivators)

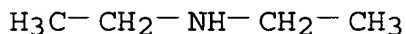
IT **Lubricating oil** additives
(**antioxidant**, metal deactivator, **Mannich** base)

IT 26444-72-4P
(manuf. and application of, as metal deactivators in **lubricating oils**)

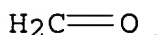
IT 108-95-2D, reaction products with dimethylamine and

formaldehyde 124-40-3D, reaction products with
formaldehyde and phenol 30525-89-4D, reaction
 products with dimethylamine and **phenol**
 (metal deactivators, for **lubricating oils**)

- L62 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2002 ACS
 1975:479881 Document No. 83:79881 Synthesis of screened
phenols. Abdullaeva, F. A. (Azerb. Gos. Univ. im. Kirova,
 Baku, USSR). Azerbaidzhanskii Khimicheskii Zhurnal (5-6), 66-9
 (Russian) 1973. CODEN: AZKZAU. ISSN: 0005-2531.
- AB A method for introduction of various functional groups into the
 position 2,4, and 6 of **phenols** by **Mannich**
 condensation reaction of (alkylthiomethyl)**phenols** with
formaldehyde (I) [50-00-0] and diethylamine (II) [
 109-89-7] and a subsequent decomposition of the
Mannich base with thiols was described and a series of
 phenyl screened **phenols** for use as **antioxidants**
 for polymers was prepared. 2-Diethylaminomethyl-4-methyl-6-
phenylthiomethylphenol [52978-65-1], 2-diethylaminomethyl-6-
 hexylthiomethyl-4-**methylphenol** [52978-66-2],
 4-methyl-2,6-bis(phenylthiomethyl)**phenol** [41890-43-1],
 2,6-bis(benzylthiomethyl)-4-**methylphenol** [52978-67-3],
 2,4,6-tris-(phenylthiomethyl)**phenol** [41890-44-2], and
 2,4,6-tris-(benzylthiomethyl)**phenol** [52978-68-4] were
 prepd. 2-Diethylaminomethyl-4-**methylphenol** [20484-31-5],
 2,6-bis-(diethylaminomethyl)-4-**methylphenol** [42498-94-2],
 2,4,6-tris-(dimethylaminomethyl)**phenol** [90-72-2],
 4-methyl-2-**phenylthiomethylphenol** [30434-81-2], and
 2-hexylthiomethyl-4-**methylphenol** [52978-69-5] were prepd.
 as starting material for the prepn of screened **phenols**.
- IT 109-89-7, reactions
 (with **thiomethylphenol** and **formaldehyde**)
- RN 109-89-7 HCAPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



- IT 50-00-0, reactions
 (with **thiomethylphenols** and diethylamines)
- RN 50-00-0 HCAPLUS
- CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- CC 35-6 (Synthetic High Polymers)
- ST **phenol** screened **antioxidant** polymer;
thiomethylphenol reaction **formaldehyde**;
 diethylamine reaction **thiomethylphenol**

IT Mannich reaction
 (antioxidant prep by, from thiomethylphenols)
IT Antioxidants
 (screened phenols for polymers, prep of, by
 Mannich reaction)
IT 41890-43-1 41890-44-2 52978-65-1 52978-66-2 52978-67-3
52978-68-4
 (antioxidant for polymers, prep of)
IT 100-53-8
 (reaction with (diethylaminomethyl)methylphenol)
IT 108-98-5
 (reaction with diethylaminomethylphenols)
IT 109-89-7, reactions
 (with thiomethylphenol and formaldehyde)
IT 50-00-0, reactions
 (with thiomethylphenols and diethylamines)

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FILE 'HCAPLUS' ENTERED AT 14:27:12 ON 26 DEC 2002

L74 25 S (L49 OR L26/D OR L26/DP) AND (POLYALKENYL? OR POLY(2A)A
L75 1 S L74 AND L43
L76 0 S L75 NOT L70